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ARCHITECTURE AT THE ROYAL ACADEMY—I.

THE critical faculties of those who, fortuitously or designedly, exercise their opportunity at this time of the year to pass judgment on art in its various forms are, we suppose, employed chiefly for the education or delectation of the general public. What our own mission (or the widest interpretation of it) may be it is not easy to say. It is obvious that if our remarks were directed to the general public we might aim to do our small part in its education and in the endeavour to obtain for the architectural profession a better understanding and a more generous acknowledgment of its efforts. But, bearing in mind the preponderance of a technical class of reader which is, to a large extent, in sympathy with the work of the architect, we will confine our remarks to the professional point of view. The Architectural Gallery at the Academy is obviously intended to show how far the architect can claim to be an artist, and help to make endurable or beautiful the buildings amongst which we have to pass our lives. He is painting for us pictures in permanent colours, at least for the lifetime of those who see them, and is either creating pleasure in their environment or the reverse. We are saying this to those who know, but who, we fear, do not always realise the responsibility which rests upon them.

Can we discover the signs of some change of feeling as regards architectural expression in the present exhibition, and is there apparent some better determination to free ourselves from the enslavement of authority and fashion? As to what particular buildings are being erected and who is doing them we are all concerned to some degree, but larger issues are the things that really matter. In a few years it will be the students of to-day who will be erecting the new buildings, and the form they will take will be partly due to Royal Academy Exhibitions. Besides this, the student may be influenced by the voices of those who tell him that a steady following of tradition will keep him right, or a bold individuality and courage will carry him farther, or that a communal individuality will be best. The present exhibition, of a truth, will not help him much to formulate his aims, but like other influences he may turn it to good account if he understands how.

Quite apart from our belief as to the right or wrong of trying to keep alive the Gothic tradition which sprang into being through the instinct and craftsmanship of men who commanded small wages and small fame compared with the great value of the work they were doing, should not most of us take some pleasurable satisfaction in the inheritance which has been proved of such value—the works of Bodley and Garner, Bentley, Pearson, Sedding and Austin? And is it not of some significance that in spite of all the reactionary influences in favour of Pagan art this national instinct survives in the work of Sir Robert Lorimer, W. J. Tapper, Geo. Gilbert Scott, Basil Champneys, and others? In the current exhibition Sir Robert Lorimer has a drawing of a memorial screen and organ for Merton College Chapel, Oxford (978), which is as good Gothic as any modern architect has done, and that is perhaps needlessly qualified praise. In his college chapel at the Guildford Grammar School, West Australia (1003), Mr. Walter J. Tapper has erected a fine Gothic building which proves that the Gothic instinct has actually revived and developed much beyond the results seen in the days of Pugin. English tradition carries us on with something of distinction in other subjects in the Gallery to-day, as in Sir Robert Lorimer's charming tinted elevation of Westminster School War Memorial (1007), which shows in its detail and notably in the sculpture (of which photographs are exhibited) how truly are preserved the qualities in the old work which we so admire. Several other drawings show how successful and interesting our architects can be when they have the English tradition behind them, as Mr. Baillie Scott's "House at Chilham" (1011), Messrs. Milne and Phipps' "Lodges and Gates" (1012), Mr. Geoffrey Lucas's "All Saints' Church, Gretna" (973), Mr. Burke-Downing's church (915), and his admirable chapel (1041), Sir T. G. Jackson's "Radley College Gateway" (1040), Mr. Gerald Unsworth's old house additions (1028), Mr. W. T. Benslyn's "College Chapel" (1037) and Mr. A. G. Mackenzie's reredos (1060). Whatever theorists may say as to the desirability of a more cosmopolitan type of art, it is undeniable that such works as are referred to above are the most interesting and bear evidence to a living belief in the tradition they maintain.

When we come to the real practical problems of the day we have nothing but admiration for the ability with which Sir John Burnet has solved the problem of a great new building at the north-east angle of London Bridge on the site of the old Pearl Assurance building; this is called Adelaide House (975). A refined coloured drawing, almost an elevation, shows a lofty tower-like building in tones of warm yellow between the blue sky above and the blue water below. This is a sky-scraper modelled into the dignity of architecture. The mass of building slightly batters towards the top and has large spaces of solid wall at the angles: it is crowned by a recessed top story with widely overhanging roof. The end elevation to the river on the east side will have something of the effect of a tower; the great number of windows gives scale to its large mass. The charming group of St. Magnus and the Monument will be for ever blocked out by this building, and the hope of a finely-balanced classic group of city buildings flanking the north end of London Bridge finally disappears. We can hardly doubt, however, that the building will be a fine expression of modern enterprise and needs. In another exhibit, by the same architect, that of Ramsgate Improvement Scheme (1035), we have a well-thought-out plan for creating both dignity and value to a seaside resort. The drawings are hung too high to be readily and fully understood, and the reproductions we have published in *The Builder* may be referred to by those interested. An outcome of modern necessities and modern methods is the large range of buildings in the proposed factory for Welwyn Garden City (967), by M. Louis de Soissons. Here is a well-balanced congregation of square blocks of building which might easily be spoilt and vulgarised by an attempt at architectural trimmings. Another building of a similarly utilitarian character is Mr. Beveridge's Hydro-Electric Power House at Assuan, Egypt (940); though this is simply designed, it does not carry the same impressiveness as the Welwyn building. Notwithstanding its merit the new departmental store (970), by Messrs. R. Frank Atkinson & Cyril A. Farey, suffers by comparison with the before-named block factory, for it is so busy with features and detail as to be really disquieting—a fault not usual with Mr. Atkinson's work.

Mr. Horace Field's business premises (996) and Mr. Beveridge's excellent Hydro-Electric Power House on the Erne (1080) complete our notes of this type of building. The clever lay-out of pleasure buildings and grounds for a station at Balneáire by Messrs. Mawson & Sons (1038) should not be overlooked.

Seven designs of banks are shown—of these the most important is Sir Aston Webb & Son's Bank of Chile, Santiago (945), illustrated by a good water-colour perspective; this great building is treated in a simple, dignified, Renaissance manner, the centre of the front being marked by columns and pediment with deeply recessed entrance. The other which is most original is the Ionia Bank, Salonika, by T. H. Mawson & Sons (1066); this is a design with breadth of effect and interest in detail, it has a low-pitched pantile roof with deep shade under widely projecting eaves and a well treated attic and frieze—the coloured perspective is admirable. Of the rest there is not much to be said. The rebuilding of a bank by Messrs. Mewès & Davis is of a usual type, but will, we know, result in a building of refinement and distinction at their hands.

We must resume our notes next week. Meantime we feel that the widespread dissatisfaction which is continually apparent, and perhaps more this year than usual, with the limitations of space at disposal of the Academy for architectural exhibits, should meet with some definite consideration. Small as the space is, it would cause less annoyance if we did not find a number of very poor subjects on the walls, whilst several admirable things have been rejected. The Academy is established to encourage art.

NOTES.

Unification of the Profession.

In the course of the lengthy and interesting Report of the Council of the Royal Institute of British Architects, which was adopted at the meeting on Monday—a report which gives some indication of the varied and useful work carried out by the Institute in the course of a year—reference is made to the consideration which has been given by the representative Committee appointed to discuss the question of the unification and registration of the profession. It will be noted with interest that a draft Report has been unanimously adopted by the sub-Committee appointed by the main Committee, and that this Report, after it has been considered by the Council of the constituent bodies, is to be submitted to a meeting of the main Committee on May 12. This is a welcome intimation that progress has been made, though to what extent we are not in a position to state; but it is earnestly to be hoped that the unanimity of the sub-Committee may characterise the decision of the main Committee at the meeting on the 12th inst., which, it is hoped, will be a full and representative gathering.

Need for Agreement.

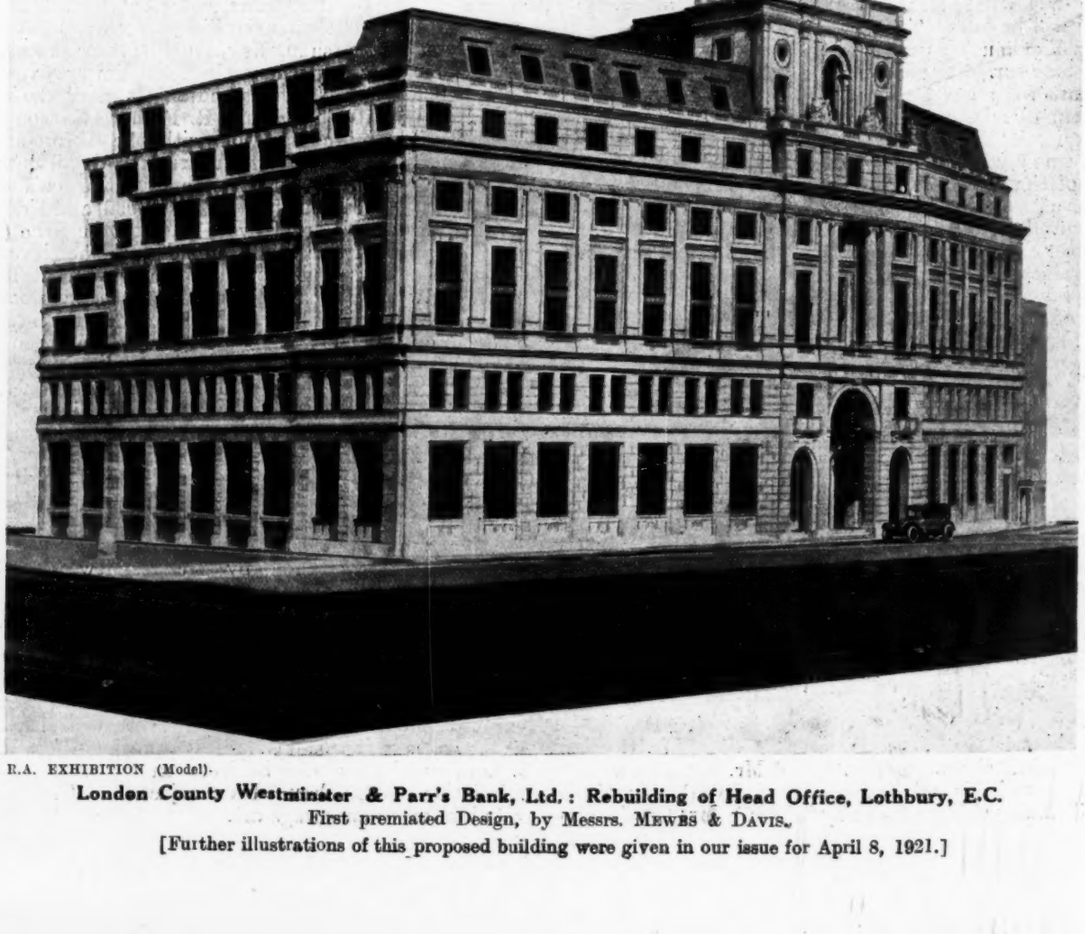
All architects who desire the well-being of their profession should seriously consider what agreement or disagreement at the present time may mean for them and the art they practise. A very promising start has so far been made towards that unification which is now agreed to be necessary, and is it too much to ask men of divergent views to give way a little on one side or the other in order to secure substantial if not unanimous agreement? Needless to say, we hope that this agreement will be possible, and that it will not only be quickly reached but that any proposals which may be agreed to will be capable of speedy realisation.

Federation or Absorption?

We do not propose to discuss now the various proposals which have been made to secure unification, but from the point of view of absorption we may point out that as most architectural societies are allied to the Institute it would be an easy matter to constitute their members as members of the R.I.B.A., which is already constituted as a great controlling body, and unification by absorption would be merely an extension of its control. The setting up of a new body would take a very long while, especially in view of the fact that there is no common standard of membership in the constituent bodies, and individuals could be taken into the R.I.B.A. and put into the classes for which they are qualified, but societies would have to join a federation on a basis of equality, which at present does not exist. Would a federation have power to act in face of any opposition by a body possessing the standing of the R.I.B.A.? In fact, what authority of its own would it possess? On the other hand, action by such a body as a reconstituted Institute would be swifter, more authoritative and far more effective than that of any federated council could be. Moreover, the standing conferred on individual architects by such a reconstituted Institute would be far greater than that conferred by registration as members of the federation. In the one case an architect would be a member of a long-established organisation, possessing very great interests, and in the other case he would be merely a registered architect.

Architecture as Everyone's Concern.

Those architects who were present on Thursday last week at the first of the series of six public lectures on architecture in the Galleries of the Royal Institute of British Architects, at 9, Conduit-street, W. 1, must

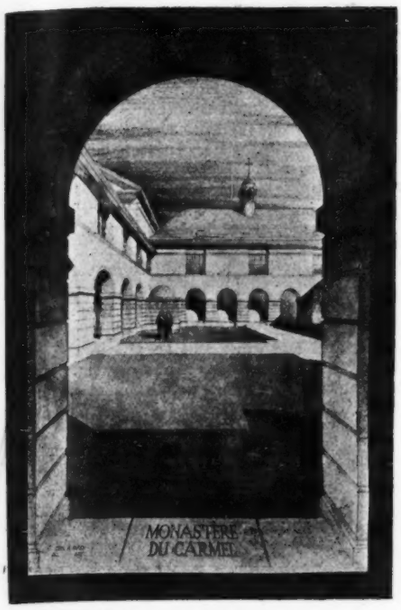


R.A. EXHIBITION (Model).

London County Westminster & Parr's Bank, Ltd.: Rebuilding of Head Office, Lothbury, E.C.

First premiated Design, by Messrs. Mewes & Davis.

[Further illustrations of this proposed building were given in our issue for April 8, 1921.]



R.A. EXHIBITION.

Monastère du Carmel.

MESSRS. ERNEST NEWTON, R.A., & SONS and MR. W. NICHOLLS, Architects.

[The Monastère du Carmel is being built at Caen to accommodate 28 nuns. The building is designed in the simplest manner and local materials have been used throughout. It may be of interest to know that the men, at their own request, are working eleven hours a day without any extra for overtime. There are no "luxury" building or other restrictions in France, and everyone appears to realise the importance of doing everything possible to stimulate and re-establish the building trade. Further illustrations of this monastery were given in our issue for June 18, 1920.]

have felt that architecture after all is a subject in which many more people take an interest than had been supposed. The large gallery was filled to overflowing, and we should not be surprised to hear that a good many people failed to gain admission. Such an audience at such a time and place must have given no little satisfaction to the committee of the Institute who arranged the course, and they are to be heartily congratulated upon the experiment.

Houses and Motor-Cars

ANOTHER gratifying fact was that the audience, though consisting of so many who were obviously not architects, took an undoubted interest in Mr. A. Clutton Brock's very able address on "Architecture as Everybody's Concern," and it was fortunate that the first lecture of the series should have been delivered by one who is not an architect, but who can reason so eloquently on the art of architecture. Mr. Brock's address, a report of which appears on page 580, was full of good sense and pertinent and apt criticism, though it may be he carried his motor-car parallel a little too far. Is there really much difference in knowledge between the purchaser of a house and a car? Most people who buy a house or a car buy what they can afford and what is already made; people who can afford to go to an architect to design them a house, and who do so because they want a good house, are probably as numerous as those who insist on the best car. That there is an increasing demand for better and better cars we can well believe, and there would be for houses if they could be bought as easily as cars.

Rabbit Netting and Felt for Houses.

AND this brings us to the suggestion made by Dean Inge on Wednesday last week, at the dinner of the London Society. We give a report of the Dean's remarks on another page, from which it will be seen that the speaker, while he did not suggest that brown paper houses should be built in this country, as he tells us they are in Japan, saw no reason why houses should not be built of easily-removable materials such as rabbit netting and tarred felt! It is not to be supposed that Dean Inge wishes to be taken seriously, but the idea suggests the possibility of houses, which were to be made fit for heroes, becoming little more than rabbit-hutches—a possibility which must be seriously considered, if there be any truth in statements which are being made that drastic economies are to be effected in future housing schemes.

Restoration of Greek Sculpture.

WE should have thought it hardly possible, except that we have Mr. Epstein's word for it, that in the light of present knowledge the British Museum authorities should be "working up," *i.e.*, restoring, the Greek marbles with false noses, &c. The Demeter of Cnidos, we are told, has been "improved" with a new plaster nose, and in order to bring the rest of the head into conformity with the nose the whole face has been scraped and cleaned! Mr. Epstein does good service in protesting against this extraordinary vandalism. Such restorations are a violation of taste and are, as he says in his letter to the *Times*, "an atrocity." We should have thought, with the experience of all that has been suffered through the restorer's hand in this country, these sculptures would have been safe from such injury. It tends to confirm the unfortunate impression that public opinion is now often more sound and trustworthy than that of the officials who are supposed to guide it. The catastrophe of this sort of Philistinism grows out of sacrificing the greater for the less. The kind of completion that is realised by placing a plaster nose on the Demeter is an utterly false one; and to restore these marbles in such a way is but to add to their mutilation by caricature.

The Housing Subsidy.

THE passing of the second reading of the Housing Bill in the Commons on Tuesday settles the subsidy grant for private enterprise and so carries on its encouragement, which Mr. Neville Chamberlain said had been the most successful of the various Government subsidy schemes, and might well be extended to include smaller cottages. The instance quoted of a bricklayer erecting a house himself for £400, which would have cost £1,000 under a Government scheme, suggested to Earl Winterton that other bricklayers employed on public schemes might use their spare time to build houses quickly and economically as private capitalists in which they would be encouraged by the unions!

The Enjoyment of Luxuries.

AGAIN we hear of a belief that the actual housing requirements of the country have been over-estimated. This belief has been current for some time, but it is stated that the Ministry of Health are really going to find out whether the belief is well founded or not; at all events, the Government will remove restrictions on "luxury" building. If we are to be free in that respect, as well as having wine and good cigars cheapened when we can afford neither one nor the other, another cycle of comedy will have been completed.

Control of the Poster.

THE announcement in a daily paper that the Underground Railway Co. has refused permission for an advertisement to be displayed on its system, which it regarded as unsuitable, is evidence of an awakening which is very much to be welcomed. Without entering into the merits of this particular instance, the Underground Railway is doing good service in its effort to raise the standard of public advertising by exercising a control over it. Very vulgar and inartistic posters have recently appeared on the hoardings from firms who should know better, and these at a cost probably much in excess of posters more tasteful and artistic. It is better, we think, that private enterprise should take its own initiative to effect this amelioration, and, like the Underground Railway, set a standard it will try to maintain, than that a body like the proposed Committee of Public Taste (a body which would be too academic and far off the field of active endeavour to be acceptable) should intervene from outside.

The President's Portrait.

MR. LLEWELLYN has not repeated his success in the portrait of the late Mr. H. T. Hare in his portrait of Sir Aston Webb in the present Academy Exhibition. The pose is unpleasantly stiff, and the expression is by no means that of Sir Aston at his best, or indeed that by which his friends know him best. The portrait is a good piece of painting, but it lacks that happy touch of natural and unaffected ease which marked the portrait of Mr. Hare.

GENERAL NEWS.

Professional Announcements.

Messrs. Hukins & Mayell, architects and surveyors, have removed from 124, Westbourne-grove, W., to St. James' House, 73, Holland Park-avenue, W. 11. Telephone, Park 3705.

The Worshipful Company of Ironmongers have appointed Mr. Sydney Tatchell, F.R.I.B.A. (of the firm of Messrs. Bourchier, Tatchell & Galsworthy) as their Surveyor.

Mr. Henry Lovegrove, F.S.I., A.R.I.B.A., having retired from office as District Surveyor, has removed to Town Hall Chambers, Old-street, E.C., where he will practise as consulting surveyor and arbitrator.

Mr. George Palmer, Building Surveyor for the Southern and Western Divisions of the Midland Railway, has retired from that post after nearly 50 years' service. He commenced his career in the Building Surveyor's office in October, 1871, and was transferred to the Architect's office in 1872, where he occupied the position of quantity surveyor. He was appointed Building Surveyor in 1902. In connection with the retirement of Mr. Palmer, the following appointments have been made:—Mr. H. N. Elwell to be Building Surveyor for the Southern and Western Divisions; Mr. J. H. Hare to be Building Surveyor for the London District.

Obituary.

The death is announced of Professor William A. Scott, A.R.I.B.A., of Dublin, who occupied the Chair of Architecture at the National University of Ireland.

The Institute of Scottish Architects.

Mr. Alexander N. Paterson, F.R.I.B.A., has been nominated President of the Institute of Scottish Architects for the ensuing year. The annual convention of the Scottish Institute is to be held in Dundee on June 21.

The New Mart.

The new Mart, at 155, Queen Victoria-street, was opened by the Lord Mayor on Friday last. The accommodation now provided comprises eleven auction rooms of varying sizes, the largest of which will seat some three hundred. Negotiations are pending for the taking over of the estate by the Auctioneers' and Estate Agents' Institute. The first auction was held in the building on May 2. Messrs. Trehearne & Norman are the architects for the new premises.

The Royal Institute of British Architects.

The annual meeting of the Royal Institute of British Architects was held at 9, Conduit-street, W.1, on Monday, the President (Mr. J. W. Simpson) in the chair. The annual report was adopted, and H.R.H. the Prince of Wales was elected an Honorary Fellow.

In consequence of the industrial situation, it has been necessary to postpone until a date which will be announced later the annual dinner of the Royal Institute of British Architects, and the Conference of the Franco-British Union of Architects.

Royal Sanitary Institute.

The interest that is being taken by the Dominions in the English standards and methods of administration is shown by the New Zealand Health Act, passed last year, which requires that "After the commencement of the Act no person shall be appointed as Sanitary Inspector who is not the holder of a Certificate from the Royal Sanitary Institute, or who is not the holder of such other qualification in lieu of such Certificate as may be prescribed in that behalf by regulations under this Act." Examinations for the Certificate referred to have been held by the Royal Sanitary Institute in New Zealand since 1911, and 84 Certificates have been issued. The examinations are also held in nearly all the other Dominions of the Empire, on the same lines and under the same standard as that adopted at examinations in England.

Worcester Archæological Society.

The first excursion of the Worcester Archæological Society was made on Wednesday last week, when a party journeyed to Pinvin, where the old frescoes on the south wall of the chancel in the church were examined. It was found that an old early Norman arch had been replaced by a new one during the restoration. The party then went to Wyre, and found in the church an almost unique Norman arch and altar stone at the east end. Special interest was taken in a collection of stone work, some of which was believed to be Saxon. The walk was then continued to Fladbury, where the Rector described the special features of the church, including the Throckmorton monument and the memorial to Bishop Lloyd, and other crosses in the east end.

Building Materials, &c., for Norway.

The office of the Commercial Secretary to H.M. Legation at Christiania has forwarded to the Department of Overseas Trade (35, Old Queen-street, S.W. 1) particulars of an inquiry for materials wanted in connection with building and repair of municipal property in Norway. The following list of materials has been furnished by the inquirers as an indication of the class of goods which will be required in large quantities, but it is not intended that it should be considered in any way exhaustive:—Rolled steel girders, armouring iron, plumbers' requisites of all kinds, sanitary ware, cement, paint oils, linoleum, &c. Further particulars relating to this inquiry may be obtained by United Kingdom firms interested on application to the Department, quoting DOT/3289/F.R./S.C. (2).

"Luxury Building."

At a meeting of the Coventry City Council last week, the Mayor called attention to the fact that some time back the Production Committee resigned, and no steps had been taken to reconstitute it. Councillor Read moved that all prohibition orders be withdrawn, and this was carried.

A conference of representatives of the Cardiff Housing Committee, the Building Trades' Employers' Federation, and the Building Trade Operatives' Federation met last week at Cardiff and passed a resolution recommending the abolition of the Production Committee, on the grounds that the prohibition of "luxury" buildings had the effect of causing the unemployment of large numbers of skilled craftsmen. At present work is prohibited on seventy-one buildings in Cardiff.

The new Housing Bill, which provides for the abolition of the prohibition clauses of the Housing (Additional Powers) Act, passed its second reading in the House of Commons on Tuesday last.

Norwich Cathedral.

In a letter to *The Times*, Mr. Edward S. Prior, commenting on a letter by Sir Charles Nicholson, says: "The futility of any archæological reproduction of the eleventh-century chapel [as a war memorial] was thoroughly exposed by the late Sir William Hope four years ago, and he understood Sir C. Nicholson agreed not to attempt it. His (Sir Charles's) letter reaffirms his intention of not perpetuating a fraud. But has he withdrawn the pretty imaginative sketch of the design which he made to please the Chapter? Architects are accustomed to sport pretty drawings, which, as architecture, are mere camouflage. In this case the drawing of the chapel, as exhibited in the Cathedral, pictures a Romanesque interior with Gothic reconstructions, as if successive centuries had each had a hand in its features, with, as its final furnishing, a confection of Jacobean joinery. There is no trace of memorial or religious sense; it is all as unreal as a cinema show. Sir C. Nicholson now proposes to start with a mere building of foundations, leaving the completion to future generations. But are the Cathedral authorities at one with their architect, for they are still asking subscriptions for what is patently false and absurdly extravagant?"

COMPETITION NEWS.

Royal Engineers' War Memorial.

In the open competition for the Royal Engineers' War Memorial, Chatham, the assessor, Sir Reginald Blomfield, R.A., Litt.D., has awarded the premiums as follows:—

First (£200)—Messrs. Hutton and Taylor, FF.R.I.B.A., 212, Bath-street, Glasgow (illustrated on pp. 588 and 589).

Second (£125)—Mr. E. Vincent Harris, O.B.E., F.R.I.B.A., 29, St. James's-square, S.W. 1.

Third (£75)—Messrs. W. Harvey, J. F. Wilson, A.R.I.B.A., and F. V. Blundstone, 119, Northhill, Highgate, N. 6.

The Committee has accepted the award of the assessor, subject to certain modifications in detail, and the work will be put in the hands of the competitors placed first by the assessor. A total of 101 designs was submitted for the competition.

Hanley.

From the designs submitted by sculptors for the Hanley war memorial, the War Memorial Committee has decided to accept, subject to some modification as to detail, the design of Mr. Harold Brownsword, A.R.C.A. (Lond.), of West Brompton.

Glasgow Institute of Architects' Studentships

The Council of the Glasgow Institute of Architects has awarded the prizes in the competition for the Alexander Thomson Travelling Studentship in Architecture as follows:—1st, £75—Mr. Alan Crombie (with Messrs. J. Burnet & Son); 2nd, £25—Mr. A. G. Paton (with Messrs. Keppie & Henderson). The subject of competition was a "Temple of Memory," and designs were submitted by candidates in England and Scotland.

Glasgow.

The Glasgow War Memorial Committee has decided to invite designs from the following architects for a cenotaph to be erected in George-square:—Sir George James Frampton, R.A., Sir Edwin Lutyens, R.A., Sir John James Burnet, A.R.A., and Sir Robert Lorimer, A.R.A.

Greenock.

For the War Memorial Committee.—Designs for a war memorial, to cost £7,000. Conditions &c., from Mr. Andrew Nimmo, Town Clerk, Greenock. (See advertisement this week.)

Halifax.

For the War Memorial Committee.—Designs for a cenotaph at a cost not exceeding £2,000. First premium, £25; second, £10. Conditions and further particulars from Mr. Percy Saunders, Town Clerk, Halifax. Sending-in day, June 1.

Sutton Coldfield.

For the War Memorial Committee.—Designs for a cenotaph or monument. Further particulars from Mr. T. Ellison, Council House, Sutton Coldfield. Sending-in day, May 14. Members of the Society of Architects are requested not to take part in this competition until the conditions have been approved.

Salisbury.

For the War Memorial Committee.—Designs for a war memorial. Sending-in day June 2. (See our issue for April 1.) (Banned by R.I.B.A. and Society of Architects).

North Wales.

The Executive Committee of the North Wales Heroes' Memorial, towards which about £160,000 is being collected for the purpose of providing science buildings in connection with the North Wales University College at Bangor, has decided to offer at the National Eisteddfod at Carnarvon this year a prize of £100 for the best design for the memorial part of the buildings. This will be in the nature of a hall or oratory, and a sum of £15,000 is to be devoted to its construction.

Other Competitions.

Other competitions still open include Chauny water supply and drainage (sending-in day, June 10), Watford Memorial Hospital (names by May 14), Wick War Memorial (banned by R.I.B.A. and Society of Architects), Cairo Hospital (October 3).

CORRESPONDENCE.

Architectural Education.

SIR,—In my article on "Architectural Education" in your last issue, unfortunately I forgot a point that I think most important. I mentioned a course of freehand drawing and modelling for the first and second years, but I omitted to say that the third, fourth, and fifth years should also have their course of art study, but more advanced; that is to say, drawing from the round, antique, life, monotone and colour studies, and composite studies of the three arts. In this last course the student should be asked to furnish a model of a given design in plaster or cardboard, to be sufficiently finished to serve as a model for the actual carrying out of the work.

It would be a valuable thing to offer a prize every year for a study carried out in collaboration with a sculptor and a painter chosen by the students submitting a sketch for a subject chosen by themselves, the ten best subjects and schemes being selected for further development, forming the object of a second competition, the winners of which should be awarded a good travelling scholarship. The students themselves should choose the country and building or buildings which they propose to draw and describe, and choose subjects which appear to them to be the most homogeneous from the point of view of the employment of the three arts, showing the manner in which they are allied and combined to form a complete whole.

I notice that you describe me as the Patron of the Society of Architects' Atelier. This is inaccurate, as I am the Patron of the First Atelier of Architecture. I also notice that you mention the Royal Academy School, the Royal College of Arts, and the Bristol School as being represented at the Exhibition; whereas, as a matter of fact, they did not exhibit.

J. P. C. CHAURES.

Qualified Architects.

SIR,—In your "Note" last week, commenting on my letter in the same issue, you question whether any means has yet been found to manufacture "qualified architects," and you suggest, in a phrase which puzzled me at first, that owing to the professional competition of public architectural bodies many architects in private practice are, as it were, surplus to establishment.

I hope it will never be possible to manufacture "qualified architects," but education when conducted on routine lines by the syllabus and time-table system must tend to standardise its products, while increasing educational facilities will draw a growing number of candidates, men and women, to the architectural profession, and when those who enter it by other channels are added one cannot help sharing the misgivings of an eminent architect in observing the appalling number of potential additions to an already overcrowded profession.

I suggest that the remedy is not to curtail educational facilities but to modify the system and to raise the standard of entry into the profession so as to eliminate the unfit at the outset, and in addition to offer every other discouragement, especially to those who look upon and depend upon an architectural career purely as a means of livelihood.

Practising architects have many difficulties and grievances, one of them being the competition of public architectural departments. These may be sometimes a very present help to assistants in times of trouble, but if, as you suggest, their activities discourage the present generation of practising architects, might not the profession find some good use for these departments, if only by holding them up as scarecrows? It all comes back to the desirability of putting into practice the policy advocated by the Society for so many years. Slam the door, arm the outer guard with statutory powers of education and examination, and the inner guard with statutory powers of registration, and we shall get rid of the queue.

If at the forthcoming unification and registration meeting we do not arrive at some basis of agreement at any rate, on the question of registration, perhaps a proposal for the formation of a Society for the Discouragement of Potential Architects might find favour, as calculated to afford a temporary relief to our sufferings in the meantime.

C. MCARTHUR BUTLER, *Secretary.*
Society of Architects.

Design in Reinforced Concrete.

SIR,—Reinforced concrete construction is now with us and has doubtless come to stay. We must go with the times, and the march of progress is not to be stopped. At the same time, many architects must contemplate with regret the vanishing days of honest stone or bricks and mortar which have fulfilled our requirements with satisfaction for so many hundred (or thousand) years. No one can deny the immense practical advantages which the adoption of reinforced concrete for building purposes has rendered possible, more especially in factory construction. The altered conditions arising therefrom have brought light, airiness, cheerfulness and comfort in working into the lives of hundreds of thousands of people whose lot it is to labour in these hives of industry, and one cannot but approve the innovation, regarded from this point of view, when one contrasts the modern factories with the gloomy and dingy buildings which they are fast supplanting.

I notice that Major Maule, in a discussion on Sir Laurence Weaver's recent address to the Architectural Association on "Rural Cottages: Common Sense in Architecture," quoted Bacon's saying, "All that is fit is fine," and expressed his belief that, if the section and plan of a building were reasonable and its elevation expressed its purpose, it was fit and, therefore, probably fine. With this I cannot help thinking that the majority of your readers will disagree—or, at all events, will consider that, if the quotation is true in general, reinforced concrete building must be the exception which proves the rule.

I have mentioned factories, this being the only class of buildings in the erection of which reinforced concrete appears to have taken a complete hold, and for which it has been adopted as a building material to the exclusion of all others. The modern reinforced concrete factory is unquestionably fit—but is it fine, or even capable of being made so? Can anyone look on the dreary, monotonous, grid-iron elevations produced by the logical development of the conditions required and frankly say that he considers them beautiful, or even tolerable? It would seem to be a question whether it is possible for any architect, however gifted, to evolve beauty in a structure where he is tied hard and fast by so many impossible conditions—that all floors, seeing they are to be used for a similar purpose, shall be of the same height; that all supports must be as nearly as possible equidistant, variation in this respect leading to waste of material and strength of floors; that 75 per cent. of the wall space shall be voids, glazed with steel sashes; and other conditions equally antagonistic to the satisfaction of æsthetic needs. It is only when a reinforced concrete building is disguised—when certain of the supports are increased to a width out of all proportion to their required carrying capacity, when voids and windows are made of a size and proportion which are not the most advantageous from an economical and practical point of view, when cornices, pilasters and other such unnecessary features are introduced—that it becomes at all bearable.

Architects are supposed to look with a jealous eye on the encroachments which have been made on their practices by reinforced concrete specialists, but may I suggest that monetary considerations are not the only ones to which the general dislike of reinforced concrete construction by architects is due—and that this may be owing, partially, at all events, to the impossibility of producing in it a building which is capable of fulfilling practical requirements in an economical manner, and at the same time of giving that impression of solidity, dignity and proportion for which we all strive? It is a case of the shop girder problem over again, but on a vastly larger scale. "Design with beauty, build with truth"—the following of this maxim, always difficult, has, it seems to me, become increasingly so by the introduction of our latest building material, reinforced concrete.

"PROVINCIAL ARCHITECT."

Certification of Frontage under the London Building Act, 1894.

SIR,—I agree with the opinion of Mr. George H. Blagrove, in your last issue, as during my long tenure of office as District Surveyor I received many applications for a certificate under Sec. 22, and always declined to give it as there is no provision for such a certificate, but I think there should be.

HENRY LOVEGROVE.

Damp-Proof Walls.

SIR,—I am collecting data and information on the construction of damp-proof walls, for the compilation of an exhaustive survey of this and kindred matters.

May I appeal, through your columns, to any firm who have a special system of construction that aims at the elimination of damp, and the production of dry dwellings, to send particulars of their system to me for inclusion in the survey?

ERNEST G. BLAKE, M.R.S.I.
8, Beaumont-road, Windsor.

Other Letters.

Some further letters on "Quantities and the Measure of Output" are given on p. 595; and two letters on "Wages in the Building Industry" appear on p. 597.

Old London Bridge.

Members of the London and Middlesex Archæological Society on Saturday last inspected the arch of old London Bridge, discovered during the excavation work now being carried on, and illustrated in our last issue. A survey is being made to ascertain if it will be possible to drive the necessary piles and erect the steel columns for the new building without interfering with the arch.

R.A. EXHIBITION.
Street View, Rodez, France.
From a water-colour by Mr. E. GUY DAWBER, F.R.I.B.A.

ARCHITECTURE AS EVERYONE'S CONCERN.

THE first of a series of six public lectures, organised by the Royal Institute of British Architects with the object of popularising architecture among the general public, was delivered at the Galleries of the Institute, 9, Conduit-street, W. 1, on Thursday last, when MR. A. CLUTTON BROCK addressed a crowded audience on "Architecture as Everyone's Concern." The chair was occupied by Mr. John W. Simpson (President, R.I.B.A.).

THE LECTURER said he thought he had a certain advantage in giving such a lecture in that he was a complete amateur on the subject and as ignorant of architecture as any other member of the general public. That was an advantage, because the public had an uneasy feeling that every profession was conspiring against them and trying to force their respective claims upon them. Architects were always insisting that architecture was one of the most important things in the world, and when architects said that the public were inclined to be prejudiced against them as simply boosting up their own profession.

He was sure the public would say that, as persons of taste, they were interested in architecture, but that was the first obstacle he wanted to get out of the way. They all knew individually that they were born with taste; that was to say, with some mysterious "inner light," or intuition, that enabled them to tell the difference between good and bad art without any education in that direction. He continually met people who said, "I know nothing about architecture, literature or painting, but I know what I like"; to those people he was tempted to say, "If that is true, you would have knowledge and taste indeed!" for one of the most difficult things in the world was to know what one liked. People went through life being hypnotised by others who imposed things upon them and tried to convince them that they liked them. That was possible because people had a conviction that they had an "inner light" and wonderful individual taste that enabled them to tell what was good and what was bad.

The belief of the public that they had that wonderful taste was responsible for all the ugliness that infested modern civilisation, and the way to lessen that ugliness was a general knowledge of the principles of art. It was curious that the English people, who were, perhaps, less interested in the arts than any other people, were the most convinced, individually, that they had taste. If a new monument were built in London, there were always plenty of people ready to express their firm conviction that it was either good or bad. But it was interesting to consider that when people had real knowledge they did not talk about the things they were interested in. For instance, people interested in motor cars did not talk about cars, because they took them seriously; it was no use having *taste* about motor cars—they must *know* something about them. The result was that motor cars were actually more beautiful than almost all the conscious works of art. The design of motor cars had steadily become—and was becoming—more beautiful and more fine, but they were not called beautiful, because they were really important things. It was only with regard to arts, such as architecture, music, and so on, that people talked about art and beauty and taste, because they did not think the arts were important. He was convinced that, if the arts were to prosper, there must be a really rational and keen public interest in them.

In the building of the great French cathedrals, such as Chartres Cathedral, the people were intensely interested, and went in crowds with gifts to help the work and to see the progress that was being made. Each cathedral, as it was built, was an attempt to improve on the last; they did not talk about "art," but were simply trying to make a better cathedral, and, owing to the public interest, there was a steady improvement in design. The buildings were intelligible, and anyone could see when the problem was solved better in one place than in another. There was no talk about the orders, and nobody said, "If you have used Ionic capitals you are certain to be right." The people wanted a thoroughly good building for a certain purpose, and, as everyone was interested in it, there were extraordinarily rapid developments in the creation of the best building.

People had very little energy to spare after the day's task of earning their living, and as there was but little energy to spare it was important that it should not be wasted. Buildings were required that were well designed, well built, and of good materials, but there was a tremendous waste of energy in designing and executing utterly foolish orders. The purposeless ornament to be seen on so many London buildings was designed and carved by human beings, and represented an enormous waste of energy when there was none to spare. Not only was that energy wasted, but it was taken away from other work; the streets of London were an appalling object lesson of bad building that could be attributed to the energy wasted on superfluous ornament.

To design a simple building really well without ornament was a very difficult task. Consequently, human nature being what it was, and as architects were human, there was a very strong tendency on the part of architects, if they were so tempted by the public, to conceal the fact that they were not very good designers by putting on pilasters and things like that. A great deal of the ornament on buildings was put there because the designer did not know what he meant, or, if he did know, did not know how to express it. Bentley, who designed the Westminster Cathedral, knew how to design and how to use different materials, but most of his life was wasted in producing imitation Gothic buildings. But he was really a master of his art, and when he got his opportunity he was able to seize it, in spite of all the discouragement he had received. Now everything was being done to spoil the Cathedral with trimmings. It was a great work of architecture because the architect had achieved a very difficult problem of design, from which came the beauty of the building.

If an ordinary layman proposed to have a house built, he invariably thought, on inspecting the drawings, that, although the house might be of really good design, it had not enough features. He usually wanted more features—gables, and so on. Architects were continually tempted by lay clients to add more features than the building ought to have. If a building of the Jacobean or Queen Anne period were compared with a modern building in the same style, it would be seen that the modern building always had twice or three times as many features as the old one. In the case of the older building the architect did not present a drawing to the client, and it was really conceived as a building. It was a curious fact that the common things of life were almost always more expensive when they were plain, because the ornament was used to cover bad materials and workmanship.

Architecture depended more than any other art on a good public understanding. An architect could only produce masterpieces if he had an interested public. Genius in architecture was common, but it was not made by the accident that a great number of people were born with a talent for designing buildings; it was made by the atmosphere of the society in which the architect lived. The architect to some extent got his conscience from the public. When the people were looking at rows and rows of ugly buildings they had got to say, "That is *my* vulgar taste." It was no use abusing the architect. If the public had a great interest in buildings they would be ready to spend money on them, and when new Government buildings appeared in all their enormity there would be a very considerable row. But at present the big Government offices were erected without anybody noticing them, and no comment was passed on them; nobody knew who chose the man to design them, or even who did design them. That was a proof that the public did not care about architecture; if they did, things would be entirely different.

The public had a totally wrong idea of architecture. They thought it was genius, and ornament, and so on, but the functional beauty of a building was never considered. When first built, Tower Bridge had a most extraordinary beauty; when seen as a steel structure it expressed its function of a gateway to the sea perfectly. But unfortunately the City authorities thought its nakedness should be covered with architecture, and it was converted at great expense into the semblance of a mediæval doorway. The people had no notion that where a structural problem successfully was solved there must be beauty. They conceived architecture as something that concealed function, and the result was erections like Tower Bridge. Art had been totally detached from science, which was one of the most vital things of modern times.

There were many hopeful signs for the future of architecture. There was a great deal to be said against the cottages now being erected, but they were much better than was possible twenty years ago. That was a hopeful sign, for if a beginning were made with small buildings people would take an interest in the subject, and would become more and more critical of badly-designed cottages. And if the cottages improved, so would the larger buildings.

The real tradition in architecture or any art was not in ornament at all, but in design, because building was a very old art in which the problems to be met had always been substantially the same. But new problems were now arising, and if the public were interested in architecture they would demand that the new problems should be met in a new way. The public should accustom themselves to see a building in terms of its purpose. Was the building an endeavour to solve any particular problem, and how far had it succeeded? How far had the ornament any relation to the structure? If a building were considered in this way really vulgar architecture would readily be recognised, because a vulgar building was one that pretended to be architecture without trying to be architecture.

There was also the psychological aspect of the question, and it was undoubtedly a fact that bad, ugly architecture had an effect in lowering the vitality of those who passed it.

A hearty vote of thanks to the lecturer, proposed by Major H. C. Corlette and seconded by Mr. Theodore Fyfe, was accorded with acclamation.

In putting the vote of thanks to the meeting, the CHAIRMAN said he thought the address was one of the most important and living discourses he had heard at the Institute. He entirely agreed with practically all the lecturer had said, especially with his insistence that good architecture was good building—that was the beginning and the end of the whole thing. Like Professor Lethaby, he believed in man's natural æsthetic virtue, but æsthetic virtue could only develop on condition of its constant exercise. The Englishman's sense of beauty was more or less atrophied because he did not exercise his judgment; he saw things but did not understand them. One of the reasons why his perception was so obscured was that dreadful convention of styles. The layman had no desire to master all that jargon, and therefore took no interest in it. If he were allowed to look at a building without hearing any of that jargon he would take much more interest in it. He also agreed with the lecturer's remarks as to the effect of ugliness on the vitality of the public. Streets with ugly and uninteresting buildings were depressing and much more fatiguing to walk down than those with beautiful and interesting buildings.

An Architect's Estate.

The late Mr. Walter B. Medlicott, architect, of Westminster, left estate valued at £2,593.

THE LONDON SOCIETY.

LONDON IN 1971.

THE London Society held a dinner at the Royal Adelaide Gallery on Wednesday last week. Sir William Wayland presided, and amongst those present were Dr. Inge (Dean of St. Paul's), Sir Cecil Harrison, Sir St. Clair Thomson, Sir James Walker, Lady Bathurst, Lady Shelley Rolls, Mr. Harold Cox, Mr. W. R. Davidge, Mr. Edwin T. Hall, Mr. E. Vincent Harris, Mr. W. J. H. Leverton, Mr. Percy Lovell (Secretary to the Society), Mr. Sydney Tatchell, Mr. Carmichael Thomas, and Mr. Frank Wigglesworth.

The subject for discussion was "London in 1971."

The principal speaker was Dr. Inge, in introducing whom the CHAIRMAN referred to the aims of the London Society. The Society, he said, was out for the betterment of London, and to try to make it a more beautiful place to live in—he had heard London described as being "ugly beautiful," and he urged those present to do their best to ensure that the new houses being built and to be built would not make London more "beautifully ugly" than it was at present.

DR. INGE said he thought a great opportunity had been missed with regard to war memorials. Instead of putting up hideous war memorials our successes might have been celebrated by destroying a few of those monuments already erected. The sinking of the German Fleet might have been celebrated by the destruction of Charing Cross Bridge, and the final peace by blowing up the Albert Memorial. With regard to the size of London in 1971, about twenty years ago calculations were made in connection with the water supply, and the limit of population was then fixed at 12½ millions. He did not think it at all likely that the population of London would ever reach anything like that figure. Personally he hoped it would not—there were quite enough places like Plaistow and West Ham scattered about the metropolis. He thought it was practically inevitable that with the decay of our foreign trade it would be found extremely difficult to support the number of people already in London. He predicted that fifty years hence London would be a good deal smaller, and he would not regret it at all. If he was right in thinking the future would be a period of progressive decline, it would be very difficult to carry out the schemes of improvement the Society had at heart, and he did not think many of those improvements would have been carried out by 1971. It was more likely that London would then be very much the same as it was now only a good deal more out-at-elbows. It was strange that human ingenuity was not turned in a greater extent to the improvement of human habitations. The idea at the bottom of house construction was that "an Englishman's house is his castle," and that it was entitled to stand a siege. There was not the smallest reason why the walls should be solid. The Japanese built their houses of brown paper, and it was therefore easy for them to change their habitation or to make their rooms larger or smaller to suit their fancy. He did not suggest that brown-paper houses should be built in this country, but he saw no reason why houses should not be built of easily removable materials such as rabbit netting and tarred felt. He thought in time there would be a very great contrast between public buildings, which should be as solid, majestic and beautiful as possible, and the houses of the private citizens, which should be cheap and easy to transport. In the future special arrangements should be made for unmarried people and childless couples who would like to have communal kitchens set up that could be used by all the residents in one street. He hoped the Americans would not be imitated and "skyscrapers" built in London; the solitary experiment of Queen Anne's Mansions should be sufficient to deter people from trying that experiment again. He supposed improvements in the speed of transport should be looked forward to, so that it might be possible to build a ring of garden cities around London from which the residents would be able to travel to the centre of London and home again in a very short time. His idea of such garden cities would be places like Auckland, New Zealand, where every house had a garden, and where 100,000 people covered an area nearly as large as Manchester, but such an arrangement was easier in a new country than in an old one. It was not likely that money would be very abundant during the next twenty years or so, and it would perhaps be wise if those desirous of carrying out improvements were to curb their enthusiasm and to count the cost. He could not feel very optimistic with regard to the future, and did not think any sensible person could.

MR. HAROLD COX said he thought London was much too large, and he was anxious to see it grow smaller—it could never be a beautiful city so long as there were so many people in it. There could not be a beautiful city that had too many people in a small area, or even too many people spread over a large continuous area. There were more people in London than in the continent of Australia, and twice as many as in Wales. That was an entirely false and unwholesome distribution of population. The ideal of a great city should be to have the country in the town, so that the children could grow up healthy amidst the flowers. The alternative was to imitate New York, but that was not the kind of London they wanted to build up; it was not only ugly, but it was absolutely unhealthy. The problem could not be solved by spreading the population and bringing the people in by rapid transit; was it altogether healthy for great masses of people to enter a town in the morning and leave it again at night, compelled to travel underground? If a really beautiful city was desired, the first thing to consider would be the means of reducing the population, and the London Society should devote its energy to that end. If the population of London could be reduced to one million, it would be possible to make a beautiful city with beautiful buildings surrounded by open spaces.

MR. W. R. DAVIDGE said the development of London in the past had been slow; the new London County Hall was started fourteen years ago and was yet far from complete. The great changes that were worth while always took a considerable time; St. Paul's took thirty-five years to build, and many of the great buildings that really counted took very many years to build—so the beautiful London the London Society had in view might take many generations to accomplish. It might be of advantage if the growth of London were limited, but attempts in that direction in the past had failed. There was, however, one thing that might prevent more people coming into London, and that was the fact that the rates had more than doubled during the past five years. The great thing to be aimed at was to spread the population, for it was quite obvious that the population of London would increase to about fifteen millions in the future. The next census would probably show a diminution of the population of the central areas, but the population of Greater London would undoubtedly show an increase. Means of rapid transit would then be more than ever necessary, and the discomforts of present-day travelling would have to be very much altered if life were to be bearable in 1971; but he thought the tendency in the future would be for people whenever possible to live out of London. As a place to live in, he preferred London, with all its inconveniences, to Auckland or New York. If the population in the future were smaller, there would be greater opportunities for improvements. In Rome the population had been more or less constant for centuries, and the city was beautified generation after generation. The progress of London depended on those who lived in it, and he felt that by 1971 there would be a new Charing Cross Bridge.

MR. EDWIN T. HALL said in comparing London with New York it must be remembered that a city's buildings were its history, and it was for that reason that London was so charming. He was afraid it would be impossible to restrict the population. Charles II tried it, and forebade the population of London to exceed 250,000, but he did not succeed. London would not go in for "skyscrapers," and so, if the population increased, the town would have to spread outwards. But if, while the town was growing, plenty of open spaces were provided, London would still be a charming place to live in. Inigo Jones devised a great scheme that would have made London the greatest city in the world; but the Revolution interfered with the plan and it was never carried out. It would be the same in the future, and until there was social peace nothing could be done. In one hundred years time he expected there would be an embankment on both sides of the river; Charing Cross and Cannon-street Bridges would be destroyed; and he hoped the river would be spanned by beautiful bridges like Waterloo Bridge. With embankments and noble buildings on both sides of the river and beautiful bridges, there would be a London worth living in.

MR. OSWALD BARRON said it vexed him to think that many of the changes in London to-day were owing to the fact that people had money to spend without knowing how to spend it, and he would rejoice to think that the city was growing smaller and poorer. No man was proud of his city unless it was small.

MR. CLAUD MULLINS said probably the greatest problem in connection with the vastly increased London of the future would be the question of local government. He agreed it would be desirable to limit the size of London, but did not consider that would be practicable. Even at present no one could tell the boundary of the County of London, and there was no body representing London as a whole.

MR. W. J. H. LEVERTON said a man's thoughts were often influenced by his wishes; he, therefore, imagined London in fifty years time would be more picturesque than it promised to be in the immediate future. There was a tendency now towards the bald in building. The new County Hall was so severe as to be somewhat suggestive of a fortress—it looked as if the councillors were preparing for the time when the long-suffering ratepayer would rise in rebellion and besiege them. Many of the large buildings now being erected were constructed of reinforced concrete or steel framing, which was put up by the engineer and clothed by the architect. He hoped that by 1971 the architect would design the whole of the construction, so that the building would be picturesque in itself and would not require to be clothed. Steel and reinforced concrete in the hands of an artist had very great possibilities, and many suggestions could be taken from old half-timbered houses, with their overhanging oriels, etc. What would the designer of Henry VII's Chapel have done with such a material as reinforced concrete? Marvels were done with stone, but with reinforced concrete a great deal more could have been done. By 1971, the spirit of the men who did great things in the past would have been thoroughly absorbed, and their work would be carried on in the same manner as they would have done it themselves if they had all the facilities now available. During the next fifty years he expected the central tower of Westminster Abbey would be built, which was the one thing the Abbey required to make it perfect. He thought that tower would be built of reinforced concrete, as the existing piers were said to be of insufficient strength to take the weight of a stone tower, and an able man could make a satisfactory design in that material.

A vote of thanks was heartily accorded to MR. PERCY LOVELL (Secretary) for his work on behalf of the Society.

PAINTING AT THE ROYAL ACADEMY.

The one hundred and fifty-third exhibition of the Royal Academy is now open to the general public; and this exhibition is arousing even more interest than last year's Academy, which is partly due to the fact that affairs amongst the Members and Associates have reached a definite stage, owing to the broader and more catholic outlook of the younger members overcoming the conservative attitude of the older advocates of, generally speaking, less advanced forms of art.

Despite the triumphant election of Mr. Augustus John and the very interesting election of Mr. Cayley Robinson, the Royal Academy has still a good deal of pruning to do before its exhibitions will reach to that high standard of art which we are entitled to look for in an exhibition of artists' work, which primarily should represent all that is best in British art.

One thing is quite certain, and that is that the Royal Academy is waking up and has made a definite march forward in the right direction. Take the hanging, for example. We can now examine pictures on their own merits without suffering the physical fatigue of the old days. Pictures are not jammed one against the other horizontally and vertically, rising upwards to absurd heights on the walls. The hanging this year is tastefully done (other exhibitions also are showing considerable improvement in this direction). There is a drastic reduction in the number of really poor pictures, which makes the show far more interesting artistically.

On entering No. 1 Gallery the first serious picture that catches the eye is the "Interior of a Barn," by Mr. George Clausen (No. 2). Mr. Clausen is never satisfied with success (the pitfall of so many clever painters). He may do the same subject twenty times, but there is no repetition in his pictures. His barn subject is painted in a light key with astonishing skill as regards the delicacy of tone and the suggestion of colour, without using much positive colour. The same remarks cannot be applied to Mr. Oliver Hall's pictures. Mr. Hall is an artist who paints dignified landscapes in a low key with genuine success. His knowledge of form is above the ordinary, especially in the trees as shown in his landscape, "Outskirts of the Forest, Bardsea," but one feels that Mr. Hall should give us something in landscape with a totally different colour scheme.

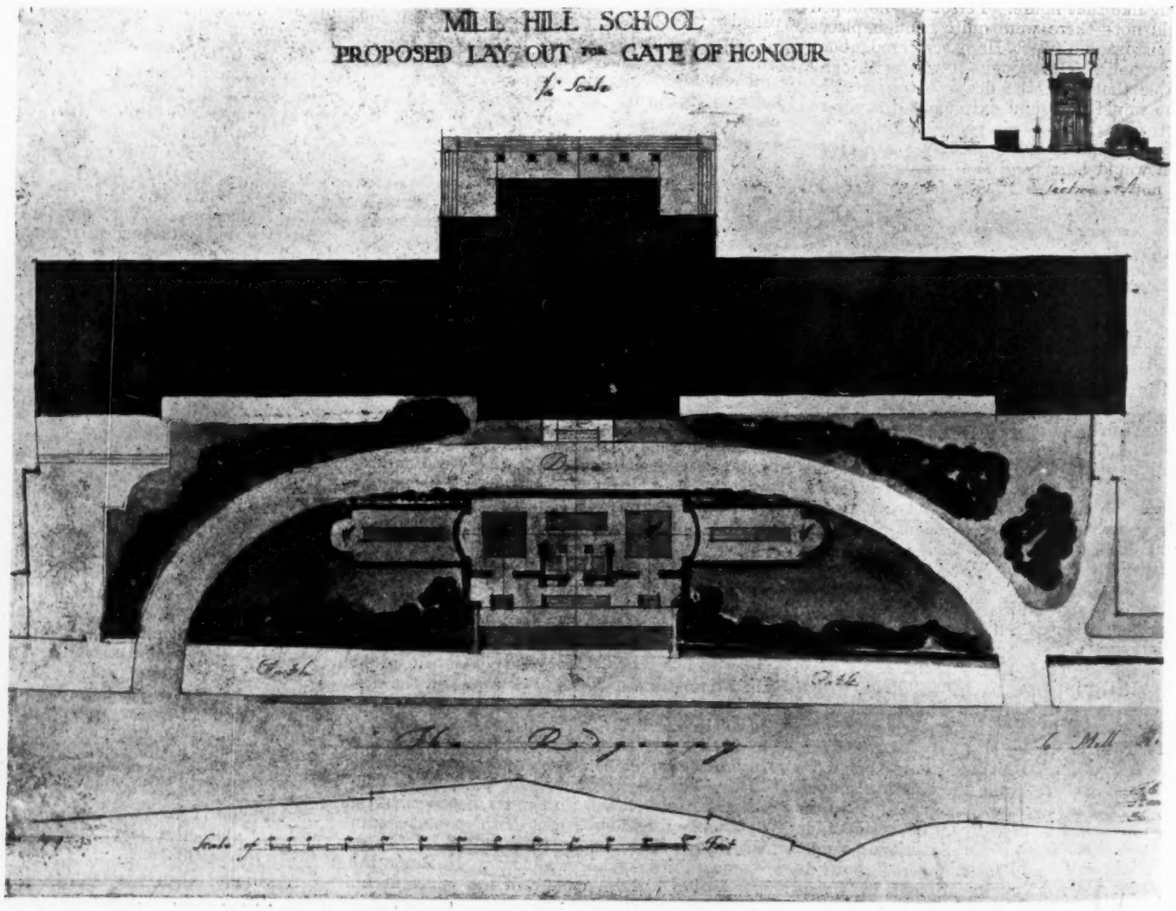
In "In the Dunes" (No. 12), by Mr. Adrian Stokes, there is really beautiful colour. It requires an artist of some intelligence to extract so much beauty from so simple a subject. The sand dunes are represented in bright sunlight, showing a yellowish golden tint contrasting with a pool of delicious blue water, placed in the centre of the picture, with pearly-coloured weed growth fringing the pool. It has a sense of aloofness from any haunts of mankind, which makes the picture one to be desired. "Golden Evening: Campo, Lake Como," by Mr. J. Walter West, has the merit of being sunny and delicate in tone, combined with charming colour. It should suit the temperament of an optimist.

To see "The Coast Road," by Mr. Arnesby Brown, is like looking at nature through a clear mirror, so true are the tone values of this picture, and so much like nature in its colouring. Yet the individuality of the artist is clearly stamped on his work. The long, trailing road across the landscape, with its firm contours, is painted with a sureness of touch that would, if painted by an artist not so conversant with Nature's magic forms, become a purely artificial line. This picture reaches high-water mark even for Mr. Arnesby Brown, for the tone of the shadows of clouds on the earth, moving across undulating country, is almost, if not quite, perfect.

In No. 3 Gallery the full-length portrait of "His Grace the Duke of Atholl," by Mr. Fiddes Watt, is not only well painted but the figure is placed in an important pose which lends considerable dignity to the whole picture. "Autumn in Argyll," by Mr. D. Y. Cameron, is one of his best works, and is painted in a much brighter manner than is his usual custom. The richness of colouring, consisting of deep gold and russet-hued woods and mountains, is placed in opposition to deep blue water with lighter blue sky and yellow-tinted clouds. All these colours are kept well in hand and under the control of the artist. For real architectural dignity his picture "Durham" is worth serious study. The gloom and mystery of the Cathedral is enhanced by a gleam of sunlight lighting up the masonry.

One of the best works in this gallery is No. 96, "The Estuary, Barmouth, North Wales," by Mr. Leonard Richmond, a large canvas painted with the artist's accustomed skill as to colour and plane values. "Lilies," by Mr. William J. Leech, is a striking study of figures and sunlight, but just misses being a success. The fuller figures of women in white costumes appear to be painted in too high a key. Had they been painted in a more subdued colour they would then have retreated farther back in the picture, as they obviously were meant to do.

"Last Rays," by Mr. Julius Olsson, is a large sea picture painted with Mr. Olsson's customary skill. The reflection of warm light is well rendered on the surface of the sea waves, although some of the clouds, whilst being well designed, do not appear to represent vaporous matter. "A Suffolk Pastoral," by Mr. Philip Connard, is a truly powerful picture painted in a fresh manner of a distant landscape, nearer trees, figures and animals. The whole



Mr. Stanley Hamp, F.R.I.B.A., Architect (see p. 584).

picture is entertaining in colour and grouping. "Edge of the Wood," by Mr. G. Henry (No. 146), is a pleasant and well-designed picture. The figure with the touch of black in the costume gives a piquant value to the green foliage and bright blue sky.

"Interior of a Studio," by Mr. Patrick W. Adam, is worthy of close attention. The handling of the paint is of the best, whilst the colour scheme shows much refinement. The chandelier (usually an object of some difficulty for artists to render in pictures) is well placed in front of a silver-coloured background, and painted with direct simplicity.

Sir William Orpen is undoubtedly one of our best, if not our best, portrait painter. All his six portraits are painted brilliantly and dominate other pictures which happen to be placed near his work. Yet he is developing one weakness which may threaten to become more serious. The portraits appear to be painted in a certain formula or manner and too easily executed, as though the length of time taken was more important than any striving after further truths and beauty. Sir William Orpen can never paint poor pictures, and one wishes to see so fine an artist reach the highest points in art. Of the two ladies' portraits the one in No. 11 Gallery of "Miss Jenny Simson" is the most satisfying, the colour, modelling, and general arrangement being well managed; whilst probably the one to attract most attention will be "Le Chef de l'Hotel Chatham, Paris," in No. 3 Gallery, which has been purchased by the Chantrey Bequest.

There is a charmingly clever portrait study by Mr. Walter W. Russell (No. 122) of "Juliette." The pose of the figure is exquisite and most happily placed on the canvas. Even the arrangement of the rows of buttons on the costume helps to give that ineffable charm which is written all over this work of art. Mr. Harry Watson is not showing woodland subjects this year. He has sent a clever picture of girls in light dresses grouped amongst rocks alongside of a rich-toned river. Mr. Watson is very able in his painting and management of figures blending harmoniously with the surrounding landscape, with splashes of sunlight emphasising certain portions of the picture.

"The Journey of the Spirit," by Mr. Glyn W. Philpot, is significant for its powerful form, whether in the three striding figures, the heavy horizontal clouds, or the rocky and forbidding mountains. Mr. Philpot is a student of the past, and utilises the healthy forms which are noticeable in Michael Angelo's great works. At the same time he is quite individual in his own conceptions and the manner of working them out. Pictures of this type fill a needed place on the walls of the Royal Academy, inasmuch as they demand thought and intelligence on the part of the spectator.

"Spring Snow in the Jura," by Mr. Adrian P. Allinson, is a welcome change from the imitative naturalistic work of some artists to the more clearly defined and more personal expression of the artist. "The Lass of Mile End," by Miss Doris C. Zinkeisen, is also another example of the painter being entirely freed from the accidents of light and shade. The drawing in this picture is of a really high order. "One Summer's Day" (No. 212), by Mr. Stanley Cursiter, is a strong picture of bright, diffused light, suggesting the effect which can be produced by the surface texture of paint, as well as colour values. The dark tone of the figures in the foreground serves a useful purpose in helping to accentuate the light sparkling distance.

Miss Anna Airey is well represented by the picture "On the Border Line." It is full of dramatic interest and is well painted throughout; also, the design is good, particularly the shape of the sky as formed by the contours of the figures and shape of the building. The man's costume, consisting of a yellow striped cloth, is handled in a masterly manner with strikingly bright colour. Miss Airey is not afraid of tackling the drawing of figures in difficult poses where the foreshortening demands the utmost skill. This picture in that sense is a tribute to her ability.

"The Back of Beyond" is another of the Royal Academy's innovations this year. It is painted by Miss Cecile Walton, and the pathetic group of figures creates a strangely haunting effect on the mind, all the more so as the picture is free from any artist's display of sensational naturalistic painting. "Armstrong's Garage," by Mr. Frederick W. Elwell, shows what a work of art can be evolved from an ordinary garage, with various figures dotted about attending to their mundane duties relating to the cleaning and upkeep of motor-cars.

Mr. Bertram Priestman shows a landscape with the modest title "Third Year Pollards." The design is perhaps a little scattered and lacking in unity, but the picture is eloquent of the artist's knowledge of Nature's forms, both in the broad and the detailed sense. The paint is well managed with a good vibrating surface combined with good colour. Mr. S. J. Lamorna Birch, in his rather small landscape, "Tweed's Fair River: Melrose," though light and bright, is yet reticent in the general colour scheme, and is full of scholarly drawing. The distant hills dotted with woods are well conceived; so also is the river with its delicate colouring. "Girl with a Fan," by Mr. Archibald Barnes, is a charmingly arranged colour scheme; the bright, yellowish-green jumper standing out against a silver-coloured background is most effective. The dark hair of the girl is well balanced from a colour standpoint by the equally dark skirt. Altogether a striking picture.

"The River Bank," by Mr. Vivian Forbes, is a large picture of swarms of children, most of whom are frolicking happily together with childish abandonment, delightfully free from any worldly troubles, and some of whom have apparently only just come out of the water. There is a curiously interesting luminous yellow tinge spread over this picture, with a background of a large, sinister-looking, dark tree, spreading horizontally across to the right and left. "Ferreting," by Mr. Gerald Moira, shows the artist's ability to paint well-constructed figures of interesting colour and tone values, placed amongst large angular rocks. The figures are well-grouped amongst the rather intimidating rocks of severe aspect.

Mr. Alfred J. Munnings gives pleasure in the autumn colouring of his trees, as well as his usual instinct in the painting of horses, in the picture entitled "The Grey Cob." In his recent pictures there is a welcome sign that he is devoting more serious attention to the landscape accessories of his equine subjects without in any way destroying the happy relationship between the two. Mr. George Clausen presents an interesting work in his picture of "Haymaking." The freshness of newly-cut hay and the general atmosphere of rural life is refreshingly demonstrated; so also is the spontaneous movement of the figures in the hayfield. Mr. Charles Sims' pictures are never anything less than interesting. If some of his landscapes are now and again not quite successful they at least command respect. He has a picture entitled "On the Road to Gorbio, Mentone," in which various ingredients of nature are woven into a delicious network pattern, quite free from any camouflage tricks of rising mists, or any Turneresque ideas of disguised forms. It is obvious that Mr. Sims has studied the earlier schools of painting with intelligence, and not with any desire slavishly to imitate the past.

Miss Dorothea Sharp lightens up No. 10 Gallery with her brightly-painted picture of "The Orange Ribbon," whilst Mr. H. Davis-Richter adds distinction to No. 11 Gallery with two well-painted still-life pictures, entitled "Geraniums" and "Household Gods" respectively. The two pictures are rich and luscious in colour, and are painted with evident sincerity. The artist is surpassed by none in his knowledge of flower form and his ability to arrange interesting still-life groups. Lovers of art will find it difficult to resist purchasing these pictures.

The water-colour room has some good pictures, particularly one by Mrs. Granger-Taylor of "Miss Olric Taylor." The painting of the face and hands is beautifully rendered with an Orpenesque surface quality. Miss Dorothy W. Hawksley, in her picture, "Six O'Clock," shows her customary skill in a charmingly-arranged colour pattern, treated with Oriental simplicity, yet suggesting light and atmosphere. "Ruins of Corfe," by Mr. Otway McCannell, a water-colour painted on a rough canvas, has a dramatic interest that blends well with the ancient castle. Other good pictures in this gallery are by Messrs. Cecil A. Hunt, W. Russell Flint, and Walter H. Allcott.

There is an interesting dry point by Mr. Malcolm Osborne of "Nathaniel Sparks, Esq.," and a clever sepia drawing by Mr. Leonard R. Squirrell, in the Black-and-White Room.

ARCHITECTURAL SOCIETIES.

ARCHITECTURAL ASSOCIATION OF IRELAND.

Architecture in Relation to the Architect.

The President, Mr. J. C. Dewhurst, F.R.I.B.A., in his valedictory address to the members of the Architectural Association of Ireland, on April 26, dealt with the subject of "Architecture in Relation to the Architect."

He briefly reviewed the architectural revivals of the last century, the Gothic revival of the romantic and ecclesiastical schools, the smaller revivals influenced by individualism, and the demand for a new style in the later Victorian era. The great Classic tradition had, he said, never died out, and it should be maintained. The principles underlying this tradition were usually present, though not always obvious, in all good architecture. He thought that the ordinary domestic work of the country, which depended on local tradition for its chief interest, and commercial and industrial building, which depended largely on the purpose for which it was to be used for its chief interest, should be evolved in the light of the larger tradition rooted in modern civilisation.

The President congratulated Mr. C. A. Harrington, M.R.I.A.I., and his class on the excellent work done during the session, and presented the prizes to the successful students.

BRISTOL SOCIETY OF ARCHITECTS.

The annual meeting of the Bristol Society of Architects was held last week at the Royal West of England Academy, when a report on the work for the year 1920-21 was presented by the hon. secretary, Mr. W. J. Stenner, and a satisfactory statement as to finance was made by the hon. treasurer, Mr. J. Bertram Wills.

The ballot for officers and council was declared by the scrutineers, Messrs. W. A. H. Masters (Swindon), T. H. Weston and A. B. Botterill, as follows:—

PRESIDENT.—Mr. G. C. Lawrence.

VICE-PRESIDENTS.—Messrs. Graham C. Awdry and Mowbray A. Green.

MEMBERS OF COUNCIL.—Messrs. George H. Oatley, S. S. Reay, B. F. G. Wakefield, T. H. Weston, Sir Frank W. Wills, and Mr. J. Bertram Wills (hon. treasurer).

ASSOCIATE MEMBERS OF COUNCIL.—Messrs. Austin B. Botterill, and H. W. Seccombe Wills.

HON. SECRETARY.—Mr. W. J. Stenner.

Votes of thanks were accorded the retiring officers and council, and congratulations were conveyed to the president upon his re-election for a third successive year, to admit of which the Council of the Royal Institute of British Architects had approved the suspension of the by-law of the Society relating to the tenure of the office.

Battle Exploit Memorials.

The Battle Exploit Memorials Committee has approved ninety-three applications from units for permission to erect memorials in France, Belgium, Gallipoli, Palestine, and other theatres of war, and thirty-seven other claims are still under consideration. In the matter of choice of design for memorials, the various units have now prepared examples of obelisks, cenotaphs, crosses and pylons, frequently in granite and bronze, on account of their durability.

Leading Contents.

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ILLUSTRATIONS.

Royal Academy Exhibits.

In addition to the Royal Academy Exhibits, illustrated in this issue, we give the following R.A. subjects as insets: "Design for the Bank of Chile, Santiago," Sir Aston Webb, P.R.A., & Son, architects; "All India War Memorial, Imperial Delhi," Sir Edwin L. Lutyens, R.A., architect; and "Memorial to the London Troops in Front of the Royal Exchange," Sir Aston Webb, P.R.A., & Son, architects, Mr. Alfred Drury, R.A., sculptor.

Lyssenthoek Memorial Chapel.

This cemetery, which includes over 11,000 graves, is about 1½ miles out of Poperinghe, and is the largest of all the British military cemeteries. Immediately next to it was a large military hospital, and as the burials during the war had to be made as best they could the design of the lay-out had to follow this. In consequence, a narrow triangular strip was left, on which the Memorial Chapel and the Great Stone have to be placed. The chapel faces to Mount Kemmel. A half-inch detail of this chapel was exhibited in last year's Academy. The War Cross (28 ft. high) stands at the angle of the cemetery, on the road to Poperinghe. The illustration was designed and drawn by Sir Reginald Blomfield, R.A., D.Litt., and is exhibited at the Royal Academy.

Mill Hill School War Memorial.

The design, from the Royal Academy Exhibition, illustrates a portion of the war memorial scheme promoted by the Old Millhillians.

In considering the nature of the proposed memorial, the Committee decided to apportion the fund towards the erection of a new Science Building and a monument in memory of those who have so worthily served their country. In the latter, the idea of a Gate of Honour, to be used in special ceremonies in the school life, was the one which appealed most strongly to the Committee. The nature of the existing school buildings determined the character of the design, which is purposely simple and refined; all suggestion of incorporating sculpture, so often found in the modern war memorials, has been rigorously opposed, the intention being that the monument should express an idea rather than any detail of circumstance.

The monument is to be built in Portland stone, with a coffered panelled ceiling of cedar wood, painted by Mr. George Murray. The gates will be bronze, and arranged to slide into the thickness of the stonework. There will be a short inscription carved on the frieze of the entablature. The names will be recorded on the panels within the memorial, and will be carved in the stone alphabetically, the names of those who have fallen being gilded.

The design is the work of Mr. Stanley Hamp, of Messrs. Collcutt & Hamp, architects, 36, Bloomsbury-square, W.C.; Mr. P. B. Bentham is the sculptor.

Uppingham School War Memorial.

The Uppingham School War Memorial is of a threefold character—the free education of the sons of Old Uppinghamians killed in the war; a war shrine attached to the School Chapel commemorating the 443 names of the killed; and a memorial hall. The first and second are now being carried out, and it is hoped that the Hall may be built very shortly. The drawing from which the plate is prepared is in the Royal Academy Exhibition, and shows the Hall, and also new class rooms. These latter are not part of the memorial scheme. The Hall is to accommodate 900. It is to be built of local stone with "dressings" of Welldon stone. The roof is to be of stone slates. Internally, the walls will be panelled to the height of the window sills and plastered above. The roof will be open timbered. Messrs. Ernest Newton, R.A., & Sons, are the architects.

Village Hall at Breamore, Hants.

This building is being given to the village by the Hon. Lady Hulse as a memorial to her son, Sir Edward Hulse, Bt. (Captain, Scots Guards), who was killed at Neuve Chapelle, on March 19, 1915.

The hall stands back from the main road from Salisbury, in the centre of the village, which lies in the Avon valley. The hall is specially designed with a stage at the east end, a gallery at the west end and committee rooms on the north and south to meet the needs not only of a village hall for dances, plays, and the purposes of a general club room, but also to provide accommodation for a women's institute and infant welfare meetings, and for cookery and domestic economy classes to be held under the County Council.

Internally, the building is very simple, consisting of a plain coved plaster ceiling; and the lighting is mainly from a series of clerestory windows. The general plan and external effect of the large porticoes and flanking aisles were suggested by and modified from the typical church or mosque of the Macedonian villages. The materials used are practically all local—the bricks, sand and gravel being provided by the estate, and old roof tiles being used from some demolished farm buildings close by.

The general contractors are Messrs. Wort & Way, of Salisbury; and the architect is Mr. Michael Waterhouse, A.R.I.B.A. The drawing is exhibited at the Royal Academy.

Cottages at St. Andrews.

These cottages occupy a frontage of 90 ft. on the sea-front at St. Andrews. They are being built for a private owner, and not under the conditions of any housing scheme. The flat system has been adopted in accordance with the Scottish custom, and there are eight houses in all, on three floors. Each house, which is fairly roomy, has been designed to meet the special needs of the population of the district, which is largely composed of fishermen and their families. The buildings are faced with local stone and roofed with red tiles. Messrs. J. H. White & Sons are the masonry contractors, and the joiner is Mr. Robert Galloway. Mr. Paul Waterhouse is the architect. The drawing is exhibited at the Royal Academy.

R.E. War Memorial Competition.

We illustrate on pp. 588 and 589 the first premiated design in the competition for the Royal Engineers' War Memorial at Chatham, by Messrs. Hutton & Taylor, FF.R.I.B.A.

Glasgow High School War Memorial.

The first premiated design in the Glasgow High School War Memorial Competition, by Mr. Will. J. B. Wright, Lic.R.I.B.A., is given on page 590.

MEETINGS.

SATURDAY, *May* 7.

Edinburgh Architectural Association.—Visit to Leith.

MONDAY, *May* 9.

Surveyors' Institution.—Mr. T. A. O'Donahue on "Valuation of Mineral Properties with Special Reference to Post-War Conditions." At 12 Great George-street, S.W.1. 8 p.m.

TUESDAY, *May* 10.

Surveyors' Institution.—General meeting to consider Supplemental Charter and amended By-Laws. At 12, Great George-street, S.W.1. 8 p.m.

THURSDAY, *May* 12.

Auctioneers' and Estate Agents' Institute.—Annual General Meeting. At 34, Russell-square, W.C.1. 3 p.m.

Society of Architects.—Mr. Sylvester Sullivan on "Architectural Education." At 28, Bedford-square, W.C. 1. 8 p.m.

"Sculpture of To-day."

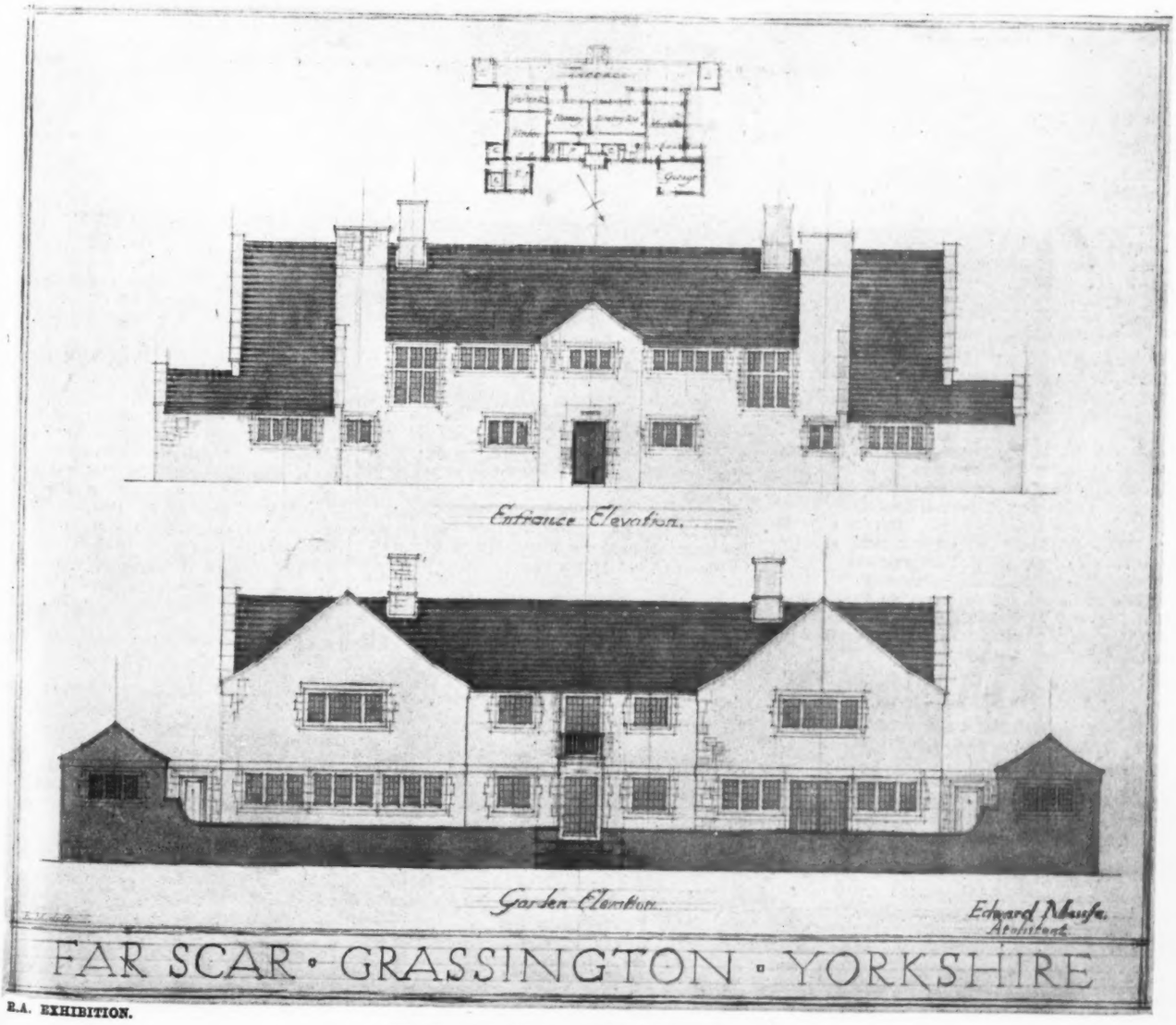
"Sculpture of To-day" is the title of a work in two volumes, by Mr. Kineton Parkes, which Chapman & Hall are about to issue. It is a survey of sculpture in the present century, led up to by a consideration of the influences exerted during the latter half of last century by Alfred Stevens in England, Rodin in France, Meunier in Belguim, and Rosso in Italy. It will have 150 illustrations of the work of living sculptors.

War Memorials to Nurses.

The appeal launched last year by Queen Alexandra's Imperial Nursing Service and the Territorial Force Nursing Service has met with a ready response, and several war memorials are to be erected. A gift to the Kitchener Memorial Chapel at St. Paul's will probably take the form of a marble figure of St. George, with a tablet setting forth its commemorative purpose. A roll of honour, bearing the names of the English nurses, will shortly be placed in the Memorial Chapel in Queen Alexandra Military Hospital, Grosvenor-road. This will be of alabaster, with the names in gilt and the badges of the service in enamel. A memorial will shortly be placed in St. Giles' Cathedral, Edinburgh, to commemorate the Scottish nurses. It takes the form of a mural monument, about 6 ft. 6 in. high. The centre portion bears the names of forty nurses who gave their lives; above the panel in the frieze are the badges of the Q.A.I.M.N.S., its reserve, and T.F.N.S., in silver and enamels. In the pediment above is a bronze statuette of St. Andrew, on either side are palms and laurels interwoven, and below are figures representing "Grief" and "Sacrifice," and of "Patriotism" and "Courage." This tablet is the work of Mr. L. F. Roslyn, R.B.S. Bronze tablets have been fixed in St. Asaph's Cathedral, North Wales, and in the Garrison Church, Dublin, specially commemorating Welsh and Irish nurses.

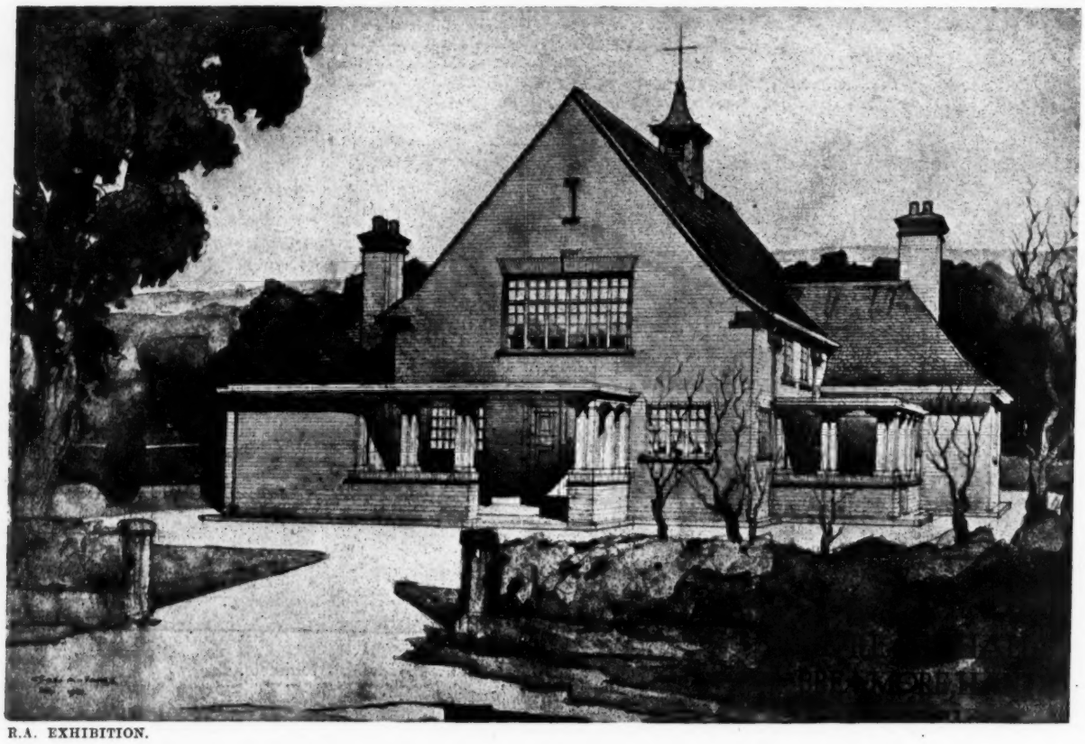
R.A. EXHIBITION.

The late HENRY T. HARE and Mr. B. LISLE, Architects.



R.A. EXHIBITION.

Mr. EDWARD MAUFE, F.R.I.B.A., Architect.

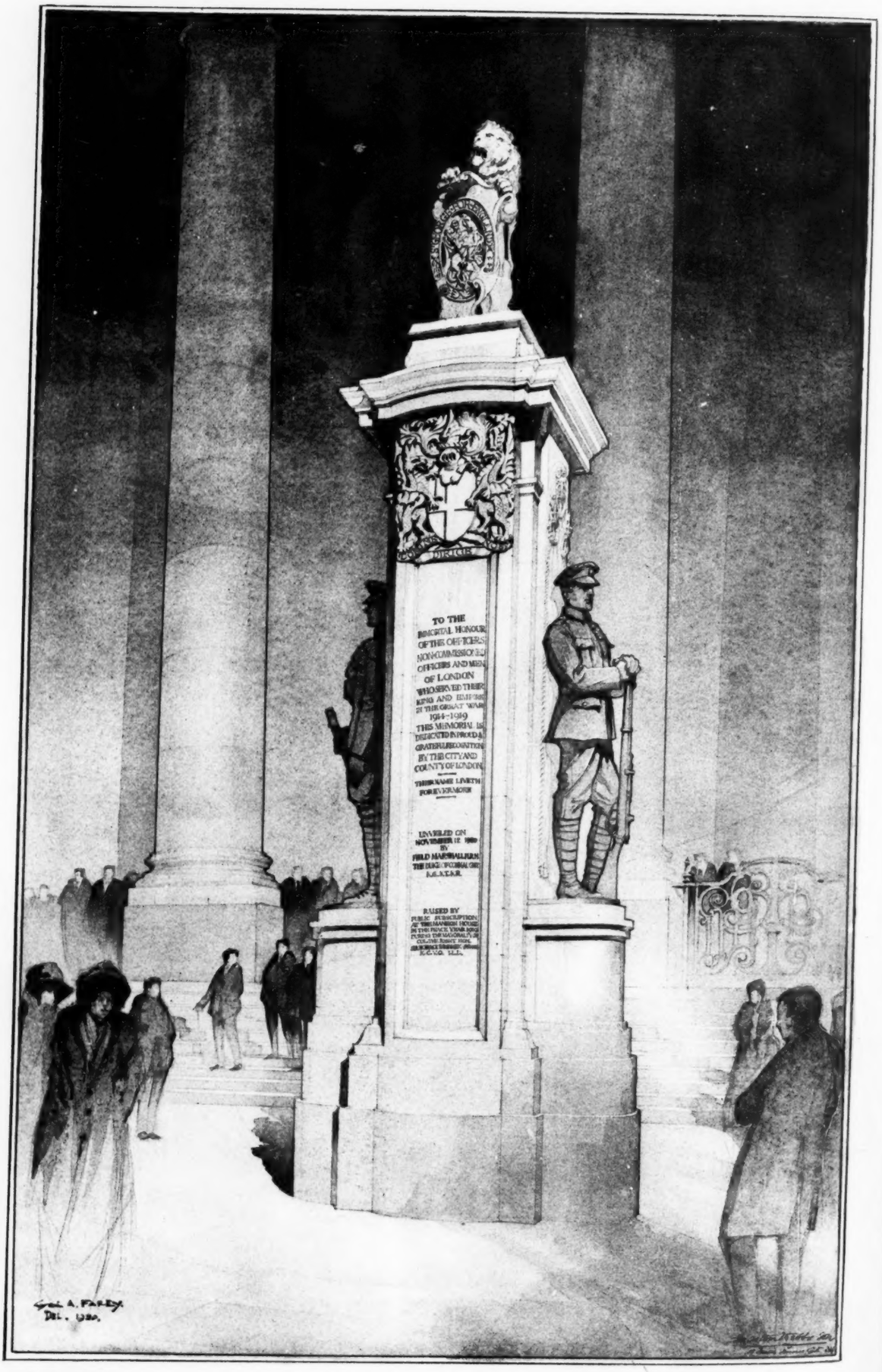


R.A. EXHIBITION.

Village Hall at Breamore.—Mr. Michael Waterhouse, Architect. (*See p.* 584.)

R.A. EXHIBITION.

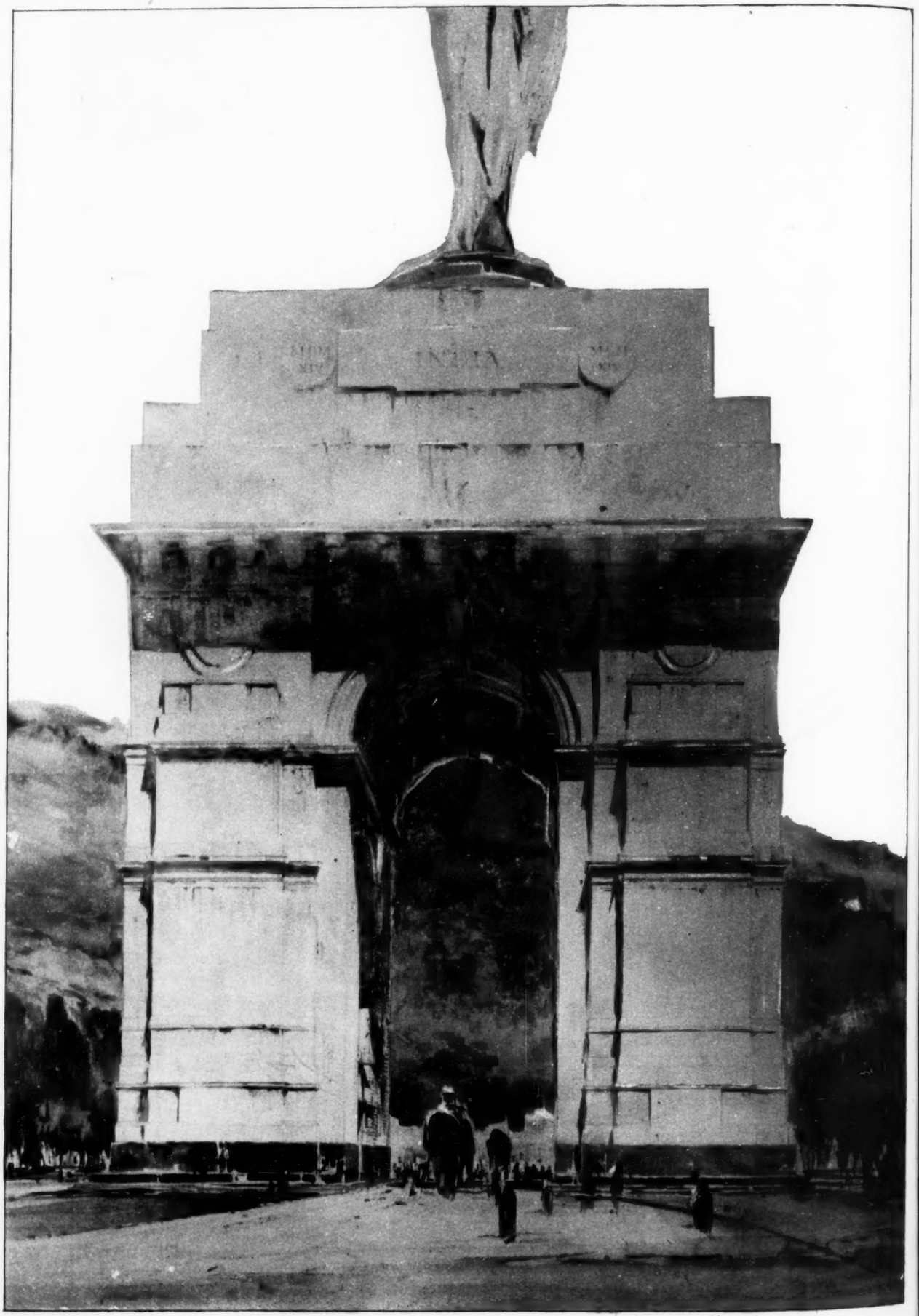
Cottages at St. Andrews.—Mr. Paul Waterhouse, M.A., F.R.I.B.A., Architect. (*See p.* 584.)



R.A. EXHIBITION.

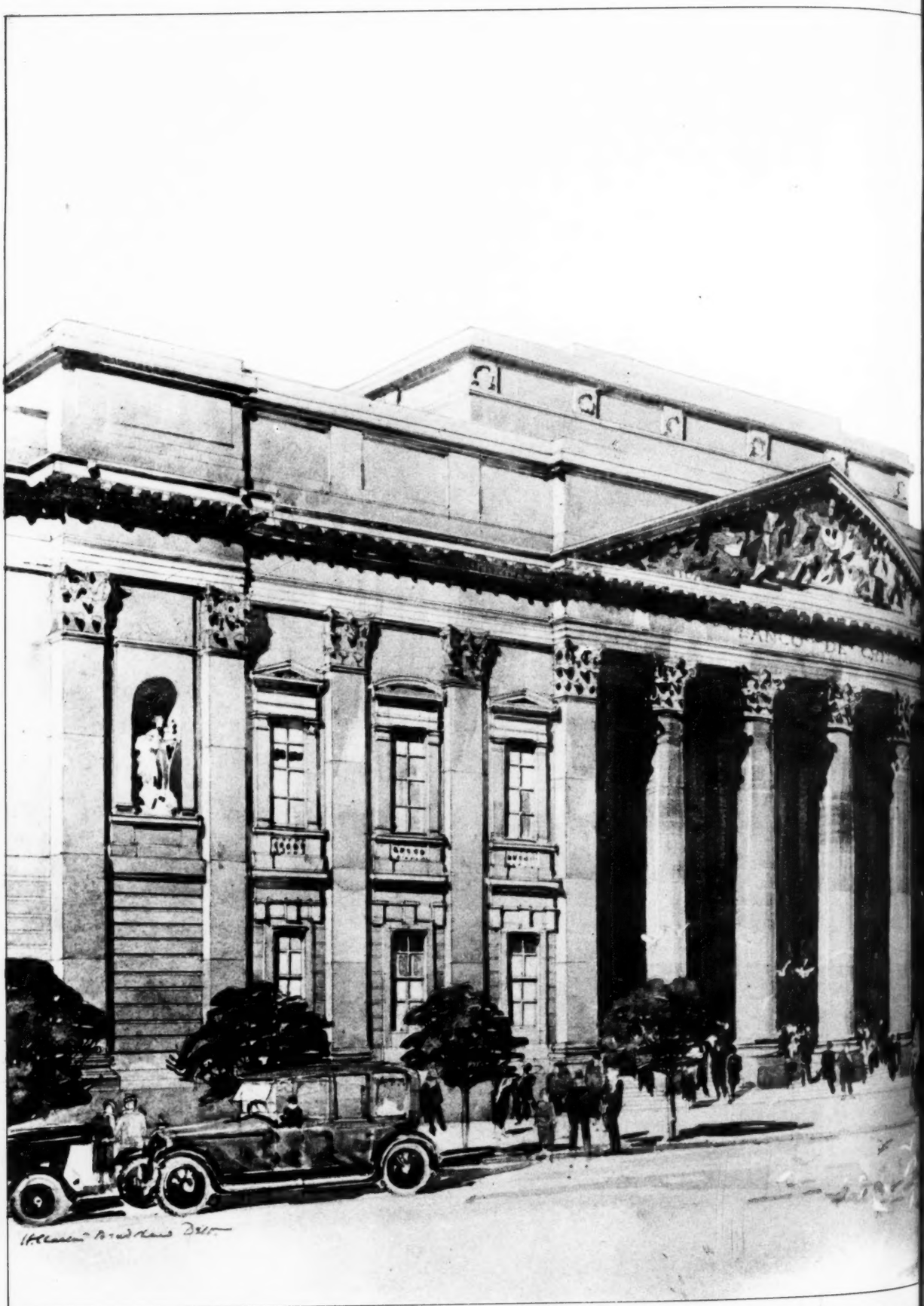
MEMORIAL TO THE LONDON TROOPS IN FRONT OF THE ROYAL EXCHANGE.

SIR ASTON WEBB, P.R.A., & SON, ARCHITECTS. MR. ALFRED DRURY, R.A., SCULPTOR.



R.A. EXHIBITION.

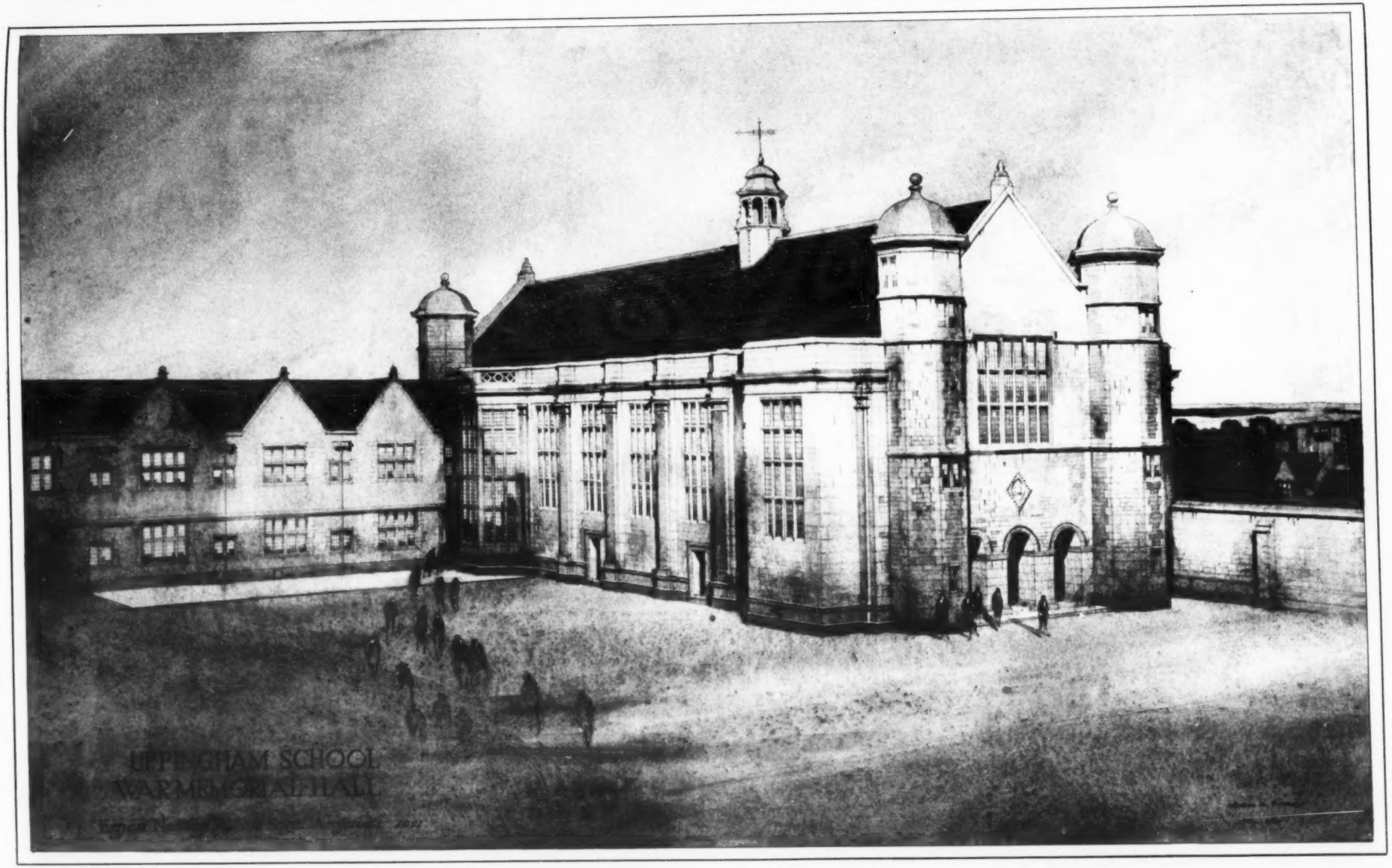
ALL INDIA WAR MEMORIAL, IMPERIAL DELHI. SIR EDWIN L. LUTYENS, R.A., ARCHITECT.



R.A. EXHIBITION.

DESIGN FOR THE BANK OF CHILE, SANTIAGO. [illegible] ASTON

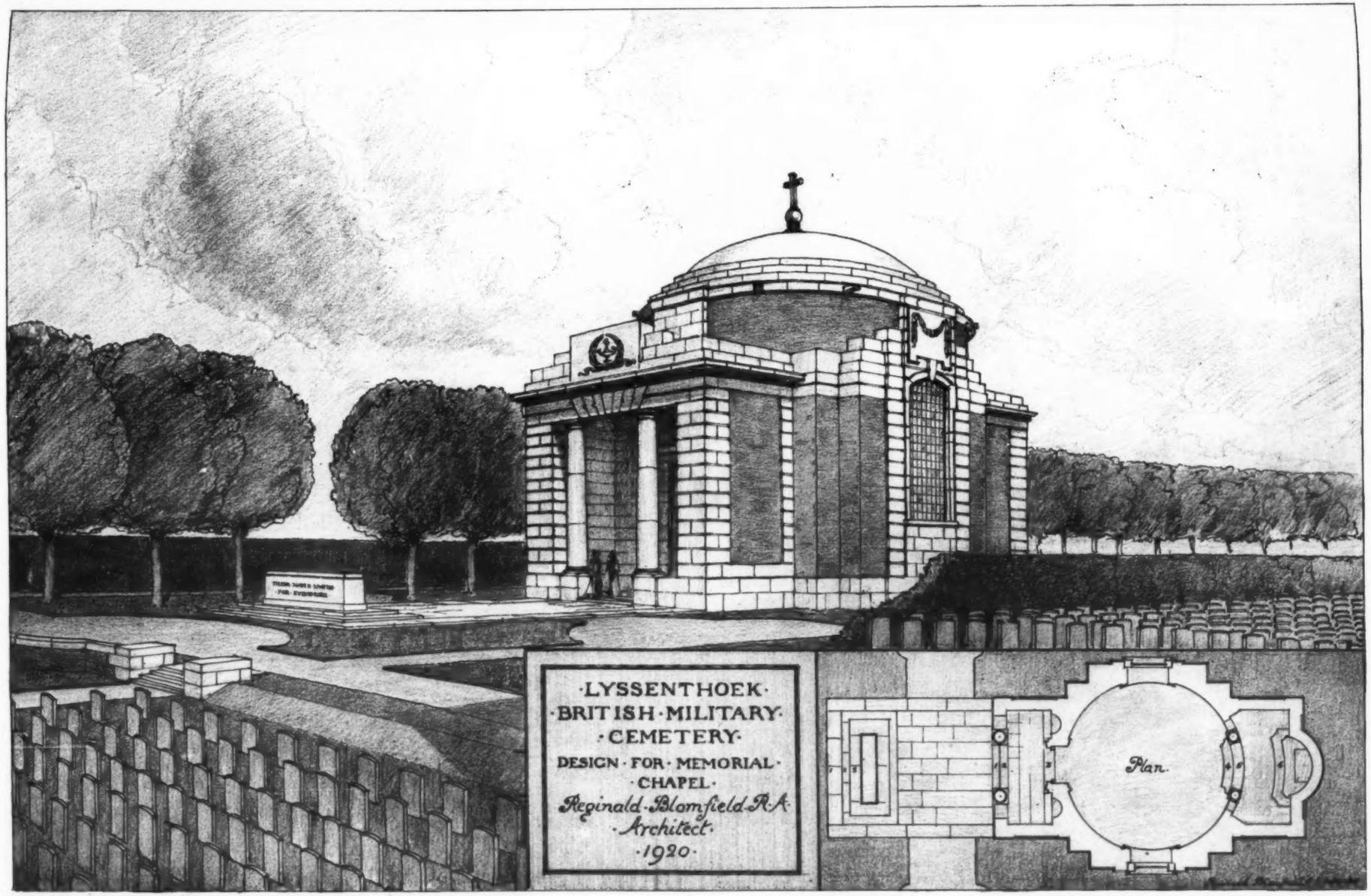
SANTIAGO. R ASTON WEBB, P.R.A., & SON, ARCHITECTS.



R.A. EXHIBITION.

UPPINGINGHAM SCHOOL MEMORIAL HALL: EXTERIOR.

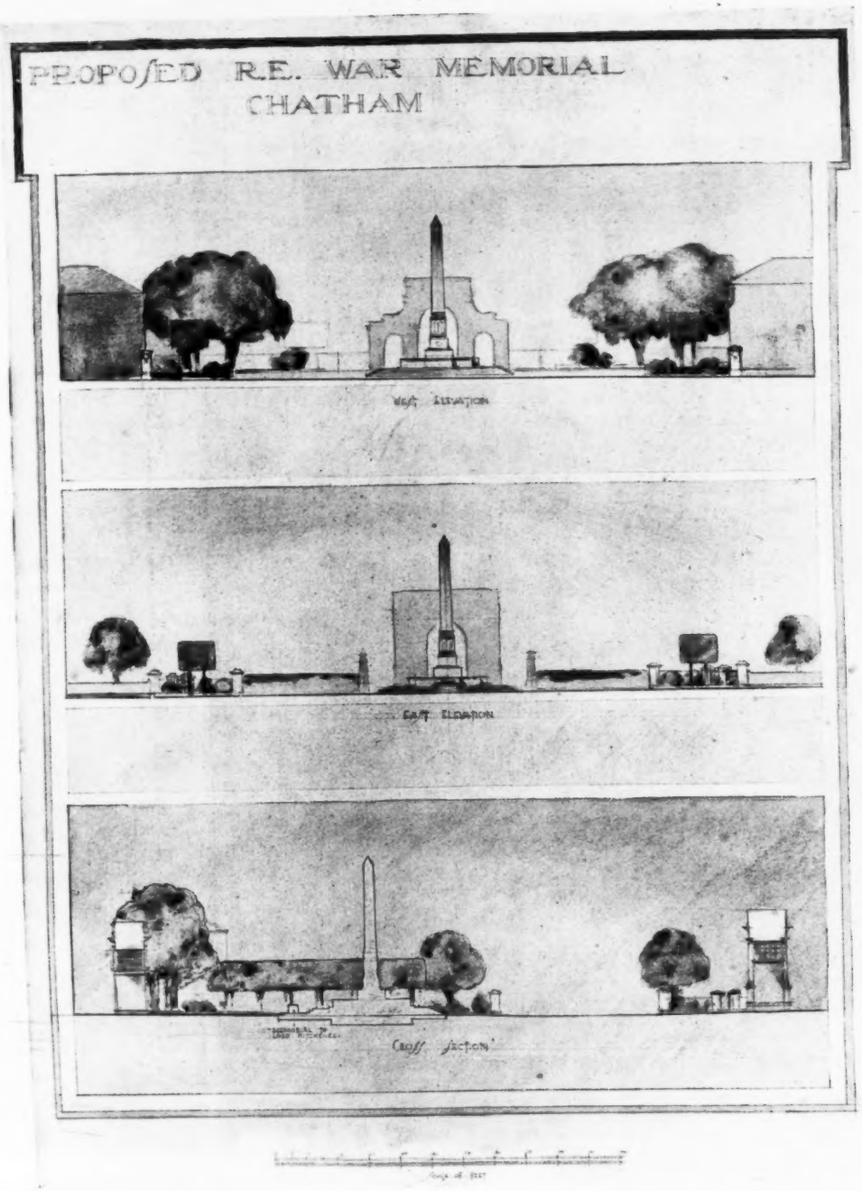
MESSRS. ERNEST NEWTON, R.A., & SONS, ARCHITECTS.

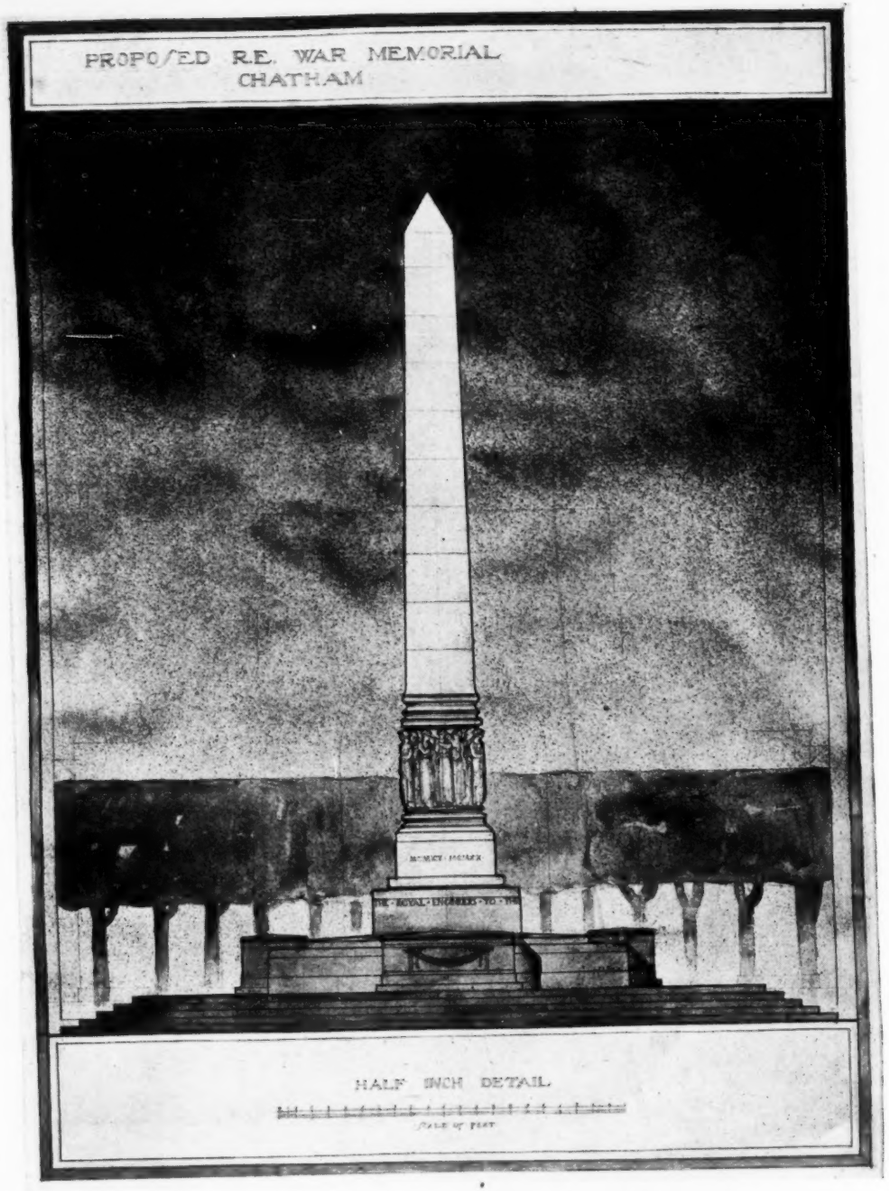


R.A. EXHIBITION.

R.A. EXHIBITION.

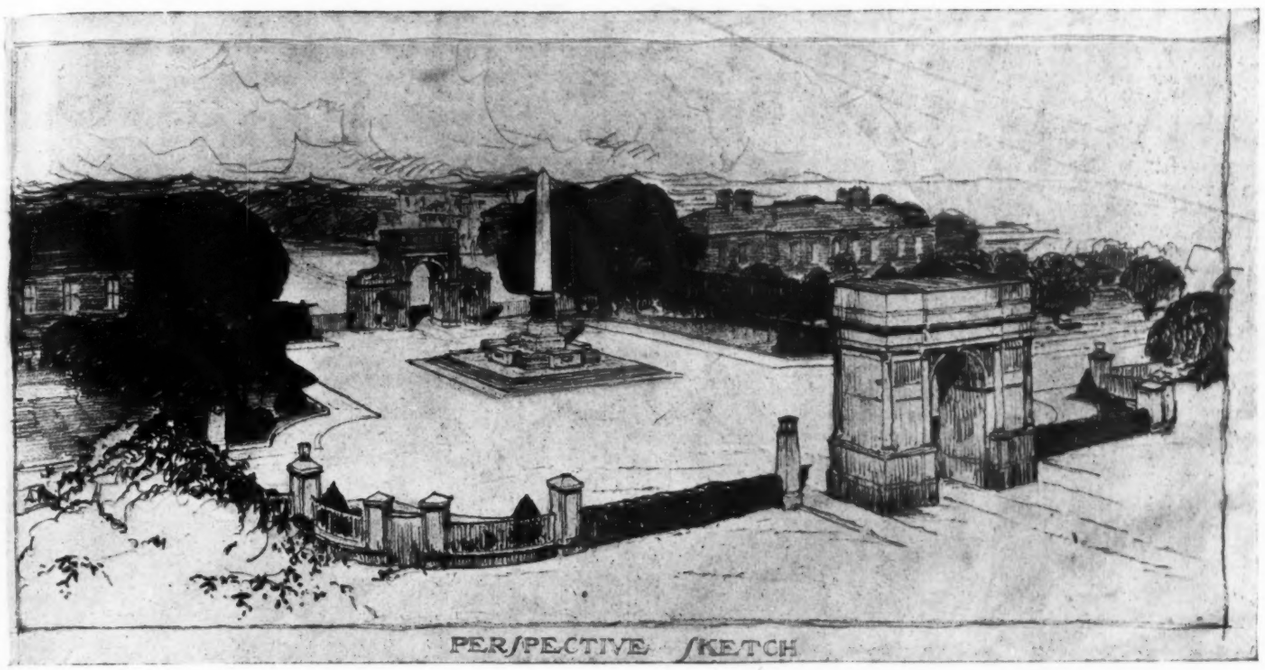
Mr. STANLEY HAMP, F.R.I.B.A., Architect. (*See p.* 584.)

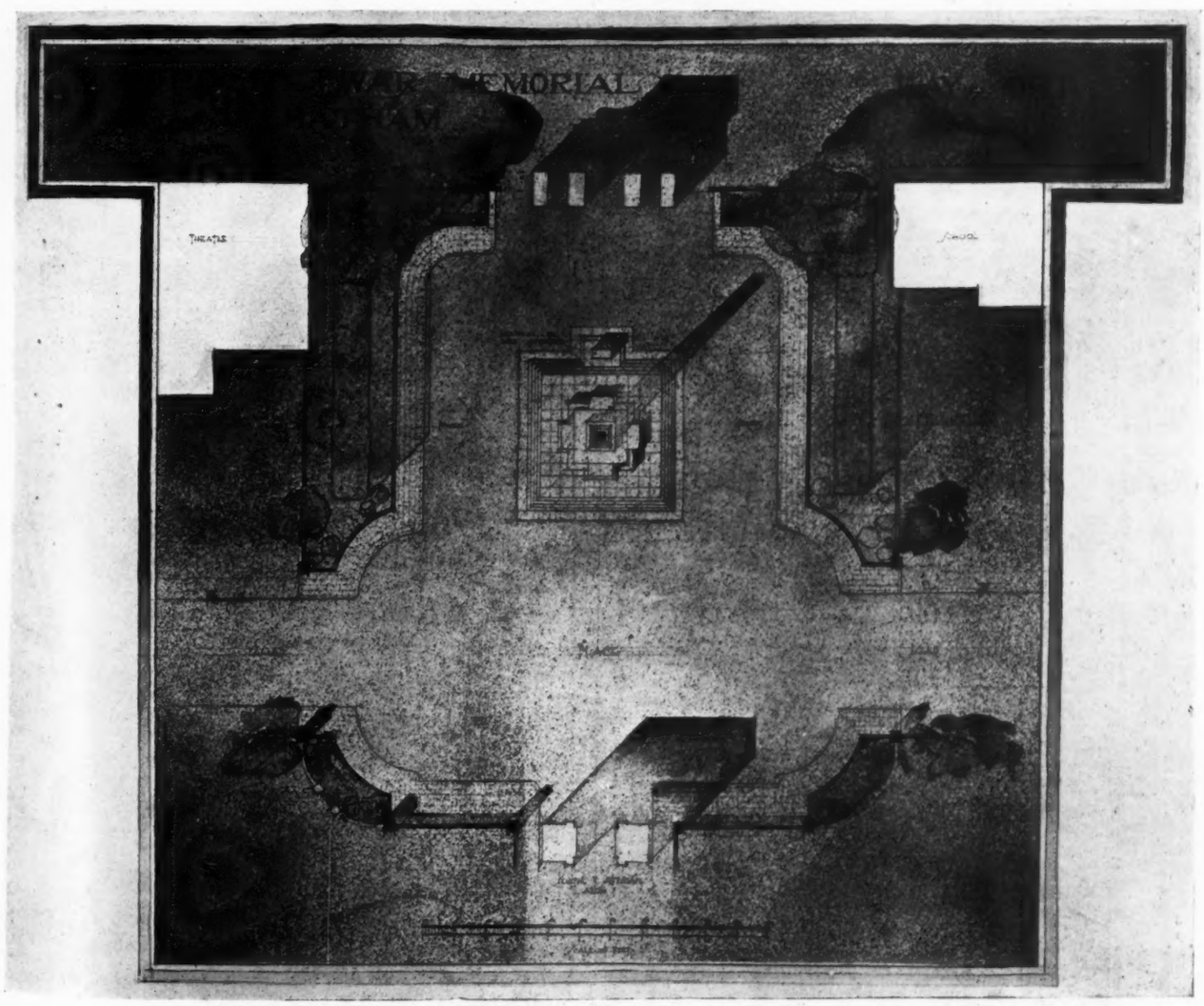




Royal Engineers' War Memorial Competition.

First premiated design, by Messrs. HUTTON & TAYLOR, FF.R.I.B.A.



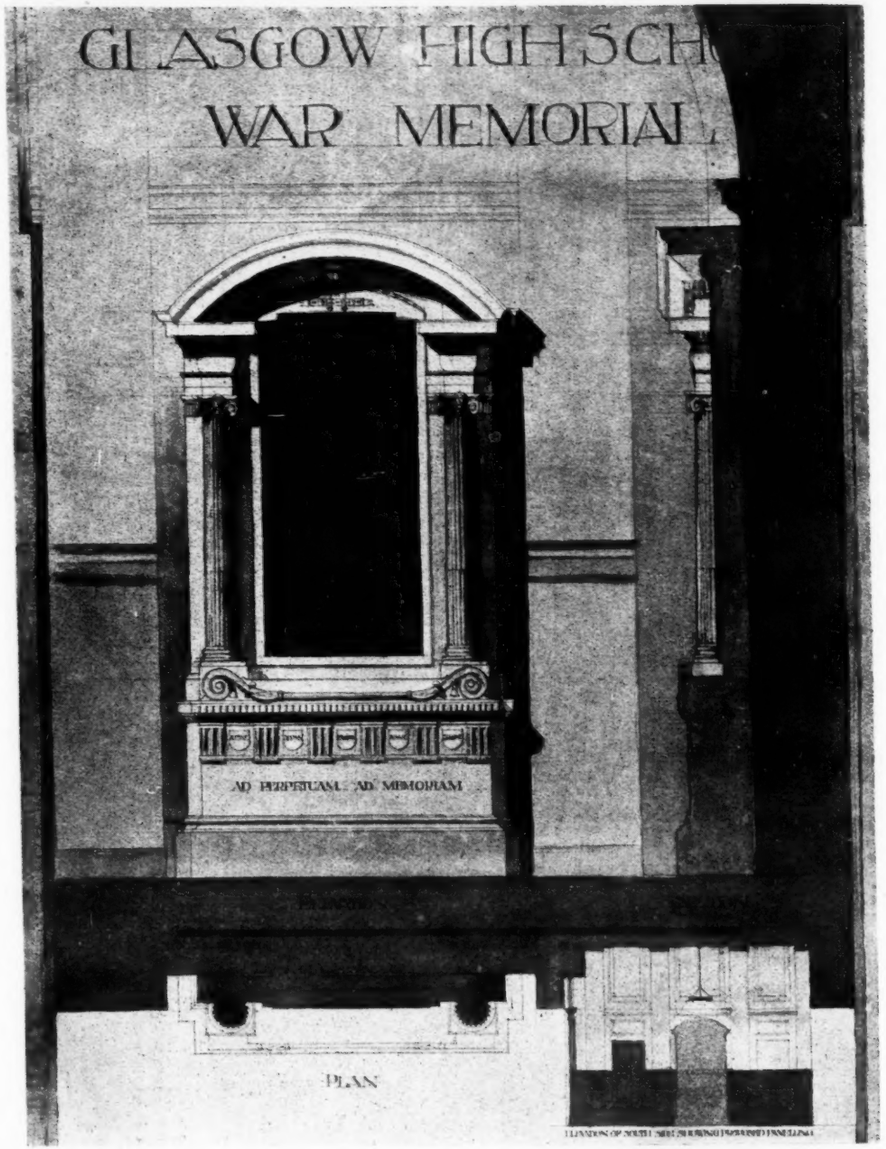


Royal Engineers' War Memorial Competition.
First premiated design, by Messrs. HUTTON & TAYLOR, FF.R.I.B.A.

[The full result of this competition is given on p. 578. We understand the accepted design may be slightly modified in execution.]

Royal Engineers' War Memorial Competition.
First premiated design, by Messrs. HUTTON & TAYLOR, FF.R.I.B.A.

GLASGOW HIGH SCHOOL
WAR MEMORIAL
ERECTED TO THE MEMORY OF THE OLD BOYS OF THE GLASGOW HIGH SCHOOL WHO LAID DOWN THEIR LIVES IN THE GREAT WAR 1914-1919
THEIR NAMES LIVE FOR EVERMORE
AD PERPETUAM AD MEMORIAM
PLAN



First Premiated Design, by Mr. WILL. J. B. WRIGHT, LIC.R.I.B.A.

[The conditions asked that this memorial should be in two parts—one on each side of the vestibule—one side with the dedicatory inscription and the other with the names, 500 in number. The memorial is of Seaton stone, with the inscription panel of a pale yellowish marble, the lettering in lead. Above this panel is the School arms with the two boys holding a swag of laurel leaves above it. The panel containing the names is of gun metal, and the letters are incised and waxed.]

MODERNISM AND DESIGN.—V.

MERE DESIGNING.

BY W. R. LETHABY.

THERE is more to be said on recent French building theory, but having promised to try to be practical occasionally, I will put the rest off for the moment. The main purpose of these papers is to show that if the data of design were properly considered and satisfied there would be no room left for the sort of "style" designing we have been brought up to and which makes as hopeless a medium to move in as a fly finds in a glue-pot. One of the data of design, however, is pure experiment. Design I have suggested may best be thought of as arranging how work should be done; and the possibilities of arrangement are to be explored by experiment. The designing faculty is properly the same or closely akin to the experimenting and inventive faculty. What we have called "design" has hardly been invention at all, but rather imitation, which in some cases has aimed at the illusion of antiquity as if an artist were a forger.

But how shall we design pattern and "ornament" without being "in a style"? Well, pattern and ornament are not great necessities, and we should be much better off if we had far less of them—they are often minus quantities, and subtracting them would really be an addition to the main sum of a building. Again, the old patterns and ornaments we copy, were themselves *experiments*, and the more we copy their form the less we are like their essence. The modern designer has been far too much subjected to a lead pencil and india-rubber view of things, and we conceive of all patterns and forms as defined by lead pencil outlines. Merely working in other ways at times would make a difference in our habit of looking at things. Try what interesting forms result from cutting out folded paper. For example, fold a piece of rather thin paper once, twice, and a third time diagonally, then cut into it with sharp little turns with the general idea of producing a rather intricate cross form. In ten minutes you may produce half-a-dozen fresh "designs," any one of which would be delightful if incised on our dry and dreary tombstones. Much of the best old cartouche work depended on experiments made with cut paper, the slashed edges of which were curled and twisted. Original and interesting scrolls for inscriptions can only be properly designed from curled paper models. Try with a long strip, first curled like a shaving and then rearranged as required.

Patterns properly make themselves by the exploration of principles, and I have often found that students working in this way will reinvent a Mediæval or Japanese pattern for themselves.

Take any simple units, a handful of pence and shillings, a pack of cards, a box of matches. Now try (of course, grown-up architects won't, they prefer detailing dentils, but children do it beautifully) the different pattern arrangements that can be made with these three sets of units, and make notes of the most interesting results. With the coins you will learn much about packing circles together. The cards will form a series of patterns which depend on the juxtaposition of similar spaces. Then try the cards and the coins together, also cards of two shapes and of different colours. Again I admit this sounds very childish, when we might be drawing out eggs and tongues from a book.

With the matches the formation of lattice patterns may be explored. Place one match against another to form a T, put verticals against the ends of the bar and horizontals on each side of the middle of the stem and against the bottom, and so on like the brick pattern Fig. 1. Then try again, doubling the bars, and again, basing on a triangle and hexagon. This is the sort of pattern-making that Leonardo da Vinci was frequently playing at, as his notebooks show, and a great number of his studies deal with lattice and knot-work patterns.

FIG. 1.

Knots and plaits may be explored both with threads or with pencil and paper. For the latter draw two pairs of short lines || = so as to form a cross. Now make a short addition to each of the eight ends, keeping them alike and symmetrical but slanting, square or curved at choice; repeat the process, keeping the distribution as even as possible (by eye), and when the knot has grown big enough close up by joining pairs of the lines. The first lines may be curved in pairs ⌒ or ⌓ or varied in other ways, and an infinite series of fresh patterns may thus be "found out." The knots thus formed in Fig. 2 were done in this way; no preliminary sketching allowed.

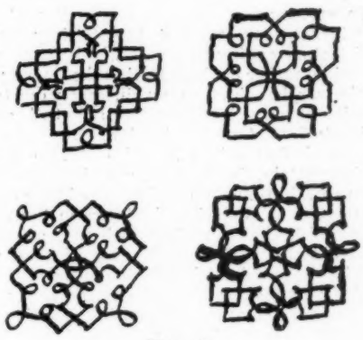


FIG. 2.

To explore the implications of a principle and "find out" results in such a way opens up natural springs of pleasure—this is a form of "creative evolution" absolutely different in kind from the sad layings-out of corpse ornaments, to which we have been so long accustomed that I believe many people find it impossible to conceive that such dry bones might live again.

Now experiment with the class of counter-changed patterns. Begin with the simple chessboard of alternate colours, and see what may be done by modifying the boundaries, giving up on one side what is borrowed on the other. If you borrow on the half of each side and give up a similar portion on the other half of the side more complicated results are obtained. By this means another endless series of patterns makes itself.

Once more, draw a network of lines, and then modify these lines, throwing off branches or scrolls or setting a sprig in each. All repeating patterns can be resolved into units such as these or stripes, zigzags, waves, scrolls, knots, latticos, scales.

Other ornamental types have been found in the characteristic use of materials and tools: the "key pattern" makes itself readily in weaving; the Greek anthemion or palmette grew up naturally in pottery painting, the characteristic brush stroke could hardly do any other than form such a pattern. All right pottery decoration, indeed, depends on the masterly use of the brush stroke—look at any Dutch tile or china pot you may have by you.

If I could only persuade a dozen architectural students to give ten minutes a day for one week to trying over these "openings" in the great designing game I should be truly pleased. Of course, they might well be shy of doing anything so reasonable, but nobody need know, and they could go on making white elephant designs on double elephant paper just the same as their serious work. Leaving out Sunday, it would only be one hour for each student, but I believe at least half of them would like the game and find out how amusing the designing of patterns is. And all ornamentation that is not amusing is vain. Further, when once the experimental interest is aroused in such abstract problems, we should be likely to carry that way of looking at things over into planning and construction.

Consider our ordinary building units as elements in a game in which the working out of possible combinations is the object—designing might be as interesting as chess! Since we took to paper architecture there has been practically only one building material which has been recognised, or taken for granted, in prize designs. Although for the most part nothing is said, white paper with some lines drawn across it stands for walling.

When architecture was building every wall was an interesting new problem, and delightful results were obtained with rough stones or mixed materials. I once, for instance, saw something like Fig. 3 at a German castle. Even with our wrought stone we usually only think of work in blocks, and hardly ever consider the possibilities of post and slab work. The other day I saw some oblong squares of glass let into slab paving; that is the sort of hint old builders would have taken up and developed into great structural windows.

FIG. 3.

Each building student ought to be set to analysing out for himself and putting down in his notebook the combinations that may be got out of ordinary bricks and tiles (Fig. 1). On the question of face bond we have come to think that what the books call "English" and "Flemish" bonds exhaust the possibilities, but it is not so; last year I found

myself living in a little house put up in the last days of the old builders, about 1840, and found that there were two stretchers to one header, the little life and change, some thought of economy, if even of cheating, gave it an interest. In Italy once I saw a workmanlike cornice, the main element of which was a projecting row of half-round tiles set thus ⌒⌒⌒ like a corbel table with a parapet above. To get new interest into our woodwork we must

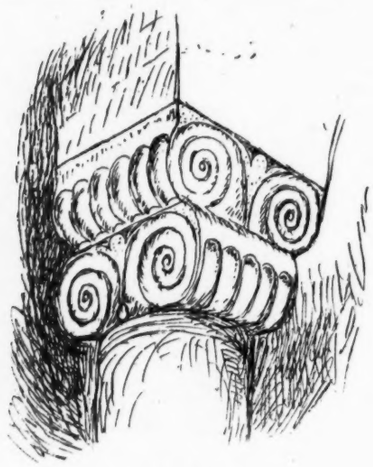


FIG. 4.

experiment in a similar way with ordinary trade scantlings. The elements come first, then the combinations. If we have no bricks and stones we naturally fall back on orders and styles.

Then it would be reasonable enough to work out new variations of old types if it is done for positions where such things are really required; but we have been so accustomed to style pretences that these things will persist for a time to look semi-sham.

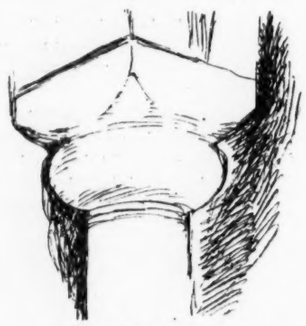


FIG. 5.

Figs. 4 and 5 are essays with a volute-type and a block-type of capital.

In my next paper I hope to speak of nature as the great source for ornamental design.

THE ARCHITECTS' BENEVOLENT SOCIETY.

ANNUAL GENERAL MEETING.

THE annual general meeting of the Architects' Benevolent Society was held on Tuesday last, in the rooms of the Royal Institute of British Architects, 9, Conduit-street, W. 1. The President, Mr. J. W. Simpson, occupied the chair, and amongst those present were Messrs. McArthur Butler, George Hubbard, Henry Lovegrove, Reginald St. A. Roumieu, E. J. Sadgrove, Maurice E. Webb, William Woodward, C. E. Worthington, Sir Charles Nicholson (Honorary Secretary), Messrs. W. Hilton Nash (Honorary Treasurer), and Rudolf Dircks (Secretary).

The Secretary read the Seventy-first Annual Report, which stated that many sad cases had been helped during the year. A total amount of £1,474 12s. 6d. was distributed in relief—£1,135 12s. 6d. in grants and £339 in pensions. As it was realised that at the present cost of living the amounts granted in pensions were very inadequate, the Council decided to make a supplementary addition of 50 per cent. The increased cost of living also influenced the Council in the distribution of grants, as the pre-war scale no longer afforded the same degree of assistance. In view of this additional demand on the Society's funds, and also of the fact that towards the end of the year the accounts showed a serious falling off in subscriptions, while the claims on the Society were increasing, an appeal for additional subscriptions was issued on December 18. The immediate effect of this appeal was the payment of many arrears in current subscriptions, as well as the accession of a large number of new subscribers. The Council was gratified to report that, the circumstances of an applicant who had received assistance during the past few years having improved, the sum of £60 was refunded together with a generous donation; a second applicant also refunded the sum of £7. The five senior members of the Council retired by rotation, viz., Mr. Sydney Perks, Mr. Arthur Crow, Mr. George Hubbard, Mr. T. E. Collcutt, and Sir Banister Fletcher.

In moving the adoption of the Report, the President congratulated the Society on a satisfactory ending to a year which at one time promised rather badly. During the trying years of the war, he said, the Council, largely due to the loyalty of old subscribers, was able to keep the subscriptions at pre-war level, but last year there was a falling off. Old subscribers did not, unfortunately, live for ever, and there seemed to be a certain timidity on the part of the younger generation in replacing the losses in the ranks. It was felt that a society with such a purpose and a history of seventy years of good work behind it should not be wholly dependent on the loyalty and generosity of comparatively few, and it was urgently necessary if the Society was to carry on its work adequately that the number of subscribers should be largely increased. He thanked those who had responded to the appeal sent out, in answer to which the Society had received subscriptions and good wishes from all parts of the world. The President of the Royal Academy had sent a cheque for £26 5s.; and Mr. Thomas Hardy, an old prizeman of the Institute, and Lord Plymouth, an Honorary Fellow of the Institute, had become subscribers. The actual result of the appeal was 501 new subscribers and 24 increased subscriptions, the total amount being £618. In addition to this, 121 donations, amounting to £437, were received. This result could not be called unsatisfactory, although he hoped the full number of one-thousand subscribers would be reached before the end of the year.

The Report was adopted.

The Honorary Treasurer announced that a donation of £100 had just been received from Mr. H. Greville Montgomery, per Mr. John W. Simpson, as president of the Building Exhibition.

The Council for the Session 1921-22 was elected as follows:—

President: The President of the R.I.B.A.

Vice-President: Mr. Reginald St. A. Roumieu.

Ordinary Members.—Messrs. W. Campbell Jones, E. C. P. Monson, Herbert Shepherd, Stanley Hamp, Saxon Snell, William Woodward, E. J. Sadgrove, Maurice E. Webb, H. M. Fletcher, Dendy Watney, H. D. Searles Wood, Henry Lovegrove, W. Hy. White, W. G. Newton (representing the Architectural Association), Sir Charles Ruthen (representing the Society of Architects).

Mr. Maurice E. Webb moved a vote of thanks to Mr. W. Hilton Nash for his services as Honorary Treasurer, and proposed that he be re-elected. The motion was seconded and carried.

A vote of thanks was accorded to Sir Charles A Nicholson, Bart., M.A., for his services as Honorary Secretary, and he was re-elected.

On the motion of Mr. William Woodward a vote of thanks was accorded to the Honorary Auditors, Mr. C. H. Brodie and Mr. Henry Lovegrove, who were re-elected for the ensuing year.

On the motion of Mr. Reginald St. A. Roumieu, a hearty vote of thanks was accorded to Mr. J. W. Simpson for his services as President of the Society.

THE NEW HOUSING BILL.

Sir A. Mond (Minister of Health), in moving the second reading of the Housing Bill in the House of Commons on Tuesday last, said its main object, contained in Clause 2, was to continue the subsidy to private builders. A considerable number of houses were commenced on the faith that the subsidy would be paid, but in consequence of the rejection of the bill last year the money could not be handed over. The restoration, as far as possible, of the private builder was highly desirable, and the Government was anxious to get the industry back to more normal conditions.

Clause 1 of the Bill, dealing with the compulsory hiring of empty houses by local authorities, was not of much practical value, and he proposed to move its deletion.

He had also come to the conclusion that it was not right to continue the prohibition of "luxury" buildings. At the time there was a shortage of labour, and there was an abnormal amount of commercial building going on. To-day, when there was so much unemployment, and when building labour was to be diluted, they could safely withdraw the restrictions, and he intended to move an amendment to that effect.

Most of the other clauses were largely financial, to enable the County Councils to raise money for the purpose of financing housing schemes. They were all in the bill of last year and did not add any burden to the schemes, but were necessary to enable the schemes to be proceeded with.

Mr. N. Chamberlain urged that the subsidy should be extended to smaller houses. There were a great number of childless couples who were obliged to live in larger houses than they required. Why should not a subsidy of £160 be made available?

Mr. C. Edwards (Labour) said the Labour Party would insist that every empty house, however large, should be thrown open to occupation. They wanted no more tiny houses; there were too many hovels already.

The Bill was read a second time.

EXHIBITION NOTE.

An exhibition of pictures and drawings (also stained glass and wall decoration) by Mr. Reginald Hallward, will be open at the Twenty-one Gallery, Durham House-street, Adelphi, W.C. 2, from May 7 till May 28, from 10.30 a.m. till 6 p.m., including Saturdays.

A CANADIAN NEWSPAPER OFFICE.

THE *Herald* building stands on the north-east corner of Seventh-avenue and First-street West, Calgary, and has a frontage of 100 ft. on Seventh-avenue and 90 ft. on First-street West. It is ten stories high from the street line, and has in addition a commodious and finely-finished basement. The structure is of reinforced concrete and steel, enclosed in a covering of art brick with terra-cotta facing and ornamental iron panels, and is fire-resisting.

The main entrance is from First-street West into a corridor finished in marble, with ornamental ceilings and provided with elevators. Facing the entrance is the office of the Calgary *Herald*, while on either side of the corridor are offices for business purposes. Throughout the building the staircases are marble and the corridor walls in terra-cotta, with floors of terazzo. Where wood is used for trimming it is all oak, simple in treatment and perfectly finished; doors and panels are inlaid with ebony and holly. The office floors are of maple.

Three fast-running electric elevators provide for the traffic. They are equipped with safety devices, and serve the upper floors on an express schedule. The elevator service is in every respect of the most modern type. A vacuum-cleaning system is installed throughout the building, and is operated by special machinery in the basement. All offices above the ground floor and all corridors and public spaces are cleaned by this system. A complete staff of servants is maintained to keep the building constantly and thoroughly clean and cared for. A mail chute service to a post-office box in the main corridor affords a convenience to tenants, and telephone connections and all other modern improvements have been provided in the offices. Lavatory accommodation has been included in the plan of every floor. The building is heated by a vacuum-steam system equipped with machinery for the accurate control of temperature. Safety-deposit boxes have been installed on each floor for the convenience of the tenants.

The architects are Messrs. Brown & Vallance, of Montreal; the contractors are Messrs. Fish, McNeill, Martin & Trainer, of Calgary; the terra-cotta is by the Doulton Potteries.

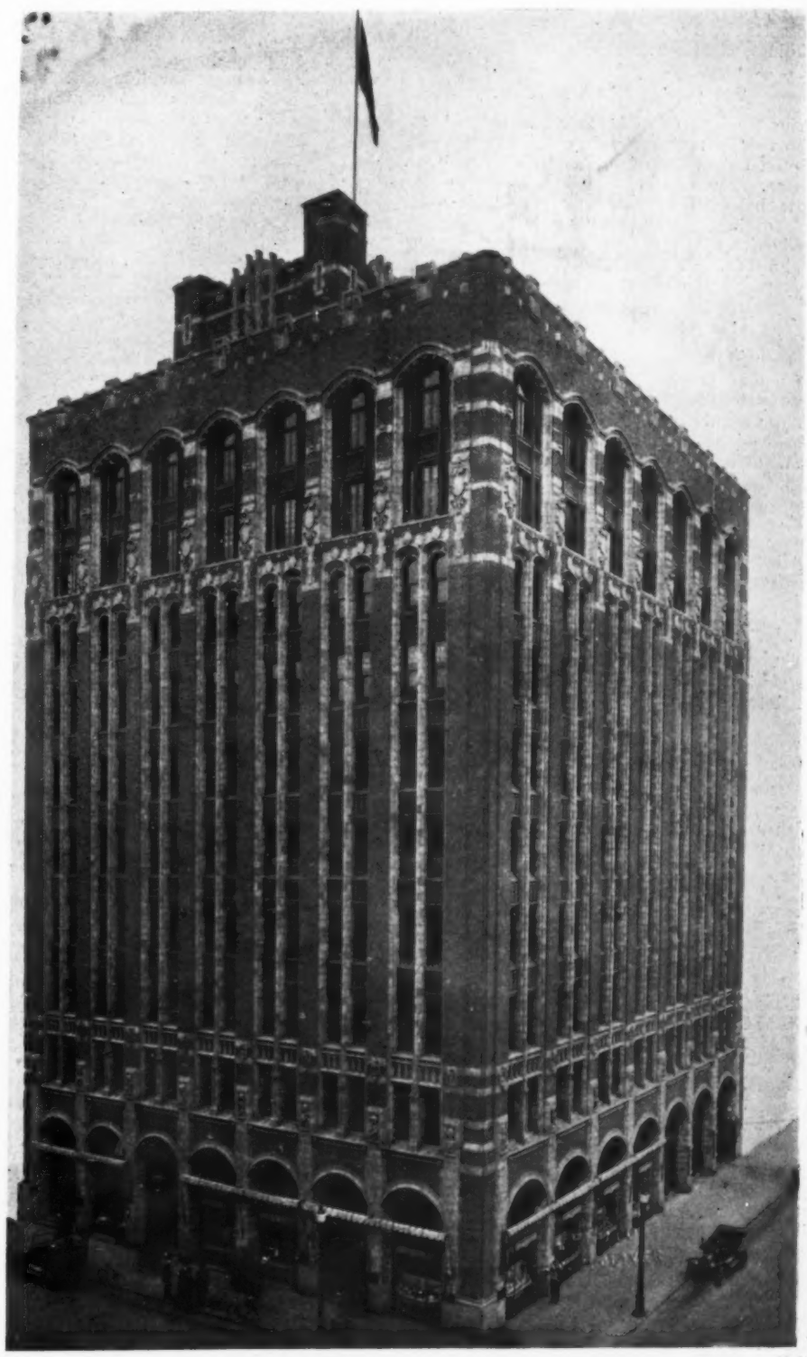
BOOKS.

Industrial Housing. By MORRIS KNOWLES London: McGraw-Hill Book Co. Price 30s. net.

THE author of this work is an engineer, but he brings to his subject much more than the technical knowledge of his craft and profession, for the book is full of evidence of the possession of those broad sympathies and interests which must be combined for success in any large housing undertaking. As he justly points out, a wide combination of interests and knowledge is necessary for housing schemes, for not only are the architect, engineer, and town-planner concerned, but the master of civics, the expert social worker, and many others must be called upon. While written from a broad standpoint, the book is still eminently practical. Only 34 pages are devoted to preliminaries, and herein not only historical matters and general aims are included, but questions of cost, organization, and technical programmes for dealing with schemes. From a useful chapter on site selection Mr. Knowles proceeds to give us 60 pages on town planning, followed by an account of streets and pavements, and then water supply, in which section of less than 40 pages he condenses much information. Sewerage and drainage in a longer chapter find him very much at home. Town wastes have a special chapter, and gas and electric services are treated at considerable length. One expected this to be followed by a critical account of the much-debated supply of heat on a large scale, but information thereon is curiously scarce, and the closing chapters relate to houses for families, other community buildings, administration, and management. The book contains 54 illustrations and diagrams, and, although its author draws entirely on American experience, this is evidently very considerable, and most of it is applicable to the schemes of any industrial community. Though we are just now in difficulties as regards the large housing developments projected in this country, no one concerned with the laying out of housing sites, or interested in community welfare, can fail to benefit by a careful perusal of these pages.

Well-Boring. By C. ISLER. London: E. & F. N. Spon. Price 16s. net.

THIS is a third edition of the author's work, which has been brought up to date and embodies his experience as a well-sinker during the war at the front. After a useful geological résumé—and a knowledge of simple geology is most necessary for engineers dealing with wells—there is a chapter of less than six pages on dug wells, followed by an account of driven-tube wells. The author then gets into his stride on the subject of bored-tube wells, first dealing with the subject generally, and then devoting chapters to the Kind-Chaudron, Dru, and Mather & Platt deep-boring systems. Chapter 8 explains the American rope-boring system, and Chapter 9 goes into the merits and demerits of diamond drilling, the present cost of which appears from the author's account to be often prohibitive. Improvements in rotary drilling by the substitution of hard chilled shot for diamonds, which we gather is largely the work of the author, is finally described with some brevity before a concluding chapter on raising water. Most large undertakings require a well, and the risk of failure for a deep well does not appear to be great, and the expense as compared with water rates should always be worked out. This book appears to deal with the subject in a very practical yet readable manner; it is fully illustrated, all the essential boring tools and gear being shown, and we feel sure it will prove of value to those interested in this subject.



The *Herald* Newspaper Office, Calgary.
MESSRS. BROWN & VALLANCE, Architects.

HOUSING AND TOWN-PLANNING NOTES.

Land for Housing.

Mr. Howard Martin, Official Arbitrator, has issued his award in a claim by Mr. H. St. Pier, of Chigwell, against the Corporation of London, concerning the Corporation's compulsory acquisition (for the purposes of its housing scheme at Ilford) of two cottages in Ley-street, and one rood, 12 poles of land, buildings and yard. The award is that the acquiring authority is to pay the claimant the sum of £570, made up as follows: for 1 and 2, St. Pier Cottages, £450; for land and buildings in rear, £120. At the hearing of the claim, Mr. F. A. Thorne, surveyor, on behalf of the claimant, submitted a valuation of £750 for the two cottages, and £250 for the land and buildings, making together £1,000. On behalf of the City Corporation, Mr. F. P. Pratt, District Valuer, submitted a valuation of £395 for the two cottages, £40 for the land, and £25 for the buildings, making a total of £460.

The Cost of House Building.

The Housing Commissioner has refused to approve the revised tenders received by the Skipton Urban District Council for its housing scheme. The revised tenders were £100 per house below those originally considered, but the Housing Commissioner has intimated that a reduction of £150 on the original price should be aimed at. Fresh tenders are to be invited.

Grants to Private Builders.

In consequence of the rejection of the Ministry of Health (Miscellaneous Provisions) Bill, it has not been possible under the existing law to pay the full amount of the subsidy under the subsidy to private builders scheme in respect of houses completed during the early months of 1921, and it has been necessary for local authorities to discontinue the issue of Certificate "A" as from December 23, 1920. An undertaking was, however, given on behalf of the Government that legislation would be introduced at the beginning of the present Session of Parliament to provide for payments in full to those completing houses between December 23, 1920, and the date of the coming into operation of the new Act, and to extend the period during which the subsidy can be earned. In accordance with this undertaking the Government has introduced a Bill for the purposes, and it is hoped that this Bill will become law at an early date. In the meantime local authorities have no authority to issue Certificate "B" in respect of houses completed after April 23, 1921. Local authorities should, however, examine any applications which are made for the issue of Certificate "B," and if they are in order should inform the applicant accordingly, and that Certificate "B" will be issued as soon as Parliament has granted the necessary powers.

Rents on London County Council Estates.

The Housing Committee of the London County Council has recommended that the initial weekly net rents of houses and flats on the first section of the Bellingham estate, Catford, be based on the following standard: Class "A" (parlour, living room, and three bed-rooms), 16s. 6d.; Class "B" (living room and three bed-rooms), 14s. 6d.; Class "D" (living room and two bed-rooms), 13s. 6d.; three-room flats, 11s. 6d.; and two-room flats, 10s. For the Ilford section of Becontree the rents proposed are: Class "E" (parlour, living room, and four bed-rooms), 20s.; Class "A" (parlour, living room, and three bed-rooms), 15s.; Class "B" (living room and three bed-rooms), 13s.; Class "D" (living room and two bed-rooms), 12s.; three-room flats, 11s.; and two-room flats, 9s. The Finance Committee points out that except in the case of the six-room houses on the Becontree estate the tenant will pay less than a third of the outgoings.

Weetslade Housing Scheme.

The Weetslade Urban District Council has signed contracts for the erection of 100 houses and roads and sewers at Dudley, and application has been made for a loan of £100,000 to carry out the work.

Housing in Scotland.

The following figures show the progress in State-aided housing schemes in Scotland:—Permanent houses completed, 1,344; temporary houses completed, 403; reconstructed houses, 59; total, 1,806. There are, in addition, 10,723 houses under construction.

Old and New Houses.

A memorandum issued by the National Housing and Town-Planning Council refers to the comments of the Dean of St. Paul's, in speaking at the London Society dinner (reported on page 581), concerning the conservatism of the British people with regard to house construction. The memorandum states that in suggesting that houses that were built 400 years ago are now in occupation, the Dean was referring to groups of ancient houses still standing in the central streets of such old cities as York, Chester, Bristol, and Edinburgh. But the number of houses with an average life of more than 200 years is small. An estimate based on a statement embodied in the Census Returns of 1831, shows, according to Mr. Finlaison, the actuary to the National Debt Office, that the population in 1750 was 6,039,684. Taking an average of eight persons per house (as representing the general prevalence of overcrowding at the time) this gives 755,000 as the number of houses then existing, good, bad and indifferent. But it is probable that not more than one in four of the houses have survived the period of a century and a half which has elapsed since 1760. It may be assumed, therefore, that the total number of pre-1750 houses surviving is not more than 200,000, or less than 2½ per cent. of the number of 8,000,000 houses recorded in the 1911 census.

Concerning the suggestion that houses should be built of tarred felt, if in addition to being constructed of makeshift materials the houses are to be of a transportable kind, then the borders of the towns would be littered with a collection of crazy structures, and would give to visitors the impression that they had been transported from the shores of their native land to an American mining camp a few weeks after prospectors had made a "lucky strike."

The records of the discussions which have taken place in recent years at various International Housing Congresses have borne witness to the wide range both in choice of materials and methods of construction. In the case of a housing scheme at Stockholm, the 6 in. walls have been constructed of wood with a 2 in. cavity lined with asbestos. At Milan, hundreds of miles nearer the equator, houses are built with stone walls 18 in. thick—the explanation given being that the thick stone wall secures coolness in the houses. But from all the discussions the advocates of brick emerge with added strength. It is not simply that brick is an ideal material to handle, but in the great majority of cases the colour of the baked clay gives richness to the aspect of the dwelling. It would, for example, be difficult to find a more beautiful building, so far as colour is concerned, than a Jacobean manor house built of brick in a country of red earth. Quarried stone for buildings of great public dignity, and brick for homes in which men dwell, would seem to be the practical rule which has been evolved by the experience of centuries.

In challenging the general assumption that a house should be regarded as fit, even though it has been built for centuries, the Dean of St. Paul's has rendered a real service. Whilst it is true that some of the houses which princely merchants built for their families in Jacobean and Georgian times are (when equipped with new sanitary systems) as good as any houses built to-day, it is equally true to state that the millions of working-class dwellings built between 1750 and 1875 are of a wretchedly poor kind. The average cost of construction was much less than £100, and as they were, for the greater part, built before the days of modern sanitation and sewerage systems, the areas on which they stand are sewage soaked.

WEEKLY HOUSING RETURN.

Progress of housing schemes up to April 22:—Tenders submitted, 191,175 houses; approved, 176,793; schemes for which tenders have been submitted, 4,782; schemes for which tenders have been approved, 4,281.

The following schemes were dealt with during the week ended April 22:—

TENDERS.

Region.	Number of Houses. Submitted.	Approved.
A	—	—
B	484	16
C	282	4
D	—	—
E	24	24
F	62	62
G	90	28
H	—	36
K	6	66
L	57	46
M	40	4
N	—	—
Total	1,045	286

CONTRACTS SIGNED.

Region.	District.		No. of Houses.
A	Durham	Urban	60
	Alnwick	Rural	6
B	Rotherham	Urban	8
	Darton	,,	38
	Calverley	,,	34
	Leeds	,,	34
	Ossett	,,	28
	Harrogate	,,	110
	Kingston-on-Hull	,,	200
C	Bootle	,,	212
	Milnrow	,,	54
	Crewe	,,	94
	Middlewich	,,	18
D	Swansea	,,	60
	Nantyglo & Blaina	,,	50
	Llanelly	Rural	14
E	Quarry Bank	Urban	64
	Stafford	,,	72
	Staffs	,,	22
G	Axbridge	Rural	32
	West Dean	,,	68
	Thornbury	,,	6
	East Kerrier	,,	64
H	East Sussex	Urban	5
K	Bethnal Green	,,	104
	Southgate	,,	12
L	Abingdon	,,	32
	Abingdon	Rural	6
	Cookham	,,	16

The English Forestry Association.

The annual meeting of the members of the English Forestry Association was held at the Surveyors' Institution, Westminster, on Tuesday last week. Mr. J. S. Corbett (Secretary) said it was proposed to wind up the present Association and start a new one, which would be registered as a trading society. On a voluntary basis it was impossible to reorganise forestry and to persuade the owners of woodlands to replant areas which had been cut down for war purposes. Seedlings, transplants, and other requirements incidental to forestry must be available at the lowest possible cost. The stocks of seedlings and transplants which would be available next winter were sufficient to reafforest 3,600 acres. At the present moment few big dealings in timber could be effected without the payment of unnecessary commissions between the consumer and the producer, and one of the principal objects of the Association would be to eliminate "unnecessary" middlemen's profits.

QUANTITIES AND THE MEASURE OF OUTPUT.

We have received the following further letters on this subject:—

SIR,—Mr. T. Sumner Smith, in his letter published in *The Builder* for April 22, appears to have fallen into a not uncommon error. It is one of the pitfalls awaiting the unwary when dealing with percentages. In the first place, it is essential to state in all percentage problems what the percentage is *on*, otherwise confusion of thought is inevitable.

In the particular problem set by Mr. Smith he does not state whether the contractor wants a 10 per cent. profit on his capital expenditure or on his turnover—two very different things, as the following will show:—

A 50 per cent. profit on a capital expenditure of £100 would be £50, and the sum of these two, viz., £150, would be the turnover on the transaction; hence, on a turnover of £150, £50 represents a profit of 33 1-3 per cent. of £150. From this it is easily seen that the percentages of 50 per cent. and 33 1-3 per cent. by themselves convey nothing definite until we know on what they are based.

Each method of giving the percentage profit has its uses. For instance, in trading accounts a profit of 33 1-3 per cent. on a business yielding a turnover of £1,500 per annum would indicate at once that the income derived from the business would be £500 per annum. On the other hand, an estimator building up a price for a job to show a profit of 33 1-3 per cent. on the turnover would naturally find it simpler to add 50 per cent. to the net cost of the labour and material. Mr. Smith, however, apparently wants him to reverse the process.

The problem can be briefly expressed as a formula, thus:—$\frac{C}{T}=\frac{t_1}{c_1}$, where C = capital expenditure, T = turnover, c_1 = percentage profit on capital, and t_1 = percentage profit on turnover. If the amount of turnover and the percentage profit on capital are the only known quantities, then:—$C+c_1\ C=T$, or $C=\frac{T}{1+c_1}$.

I suggest to your correspondent that instead of examining scores of books on pricing, estimating, and engineering, he refers to any book on arithmetic, where he will find the information he seeks, which is obviously too elementary for the books he has searched in vain.

W. PARRY-JONES.

SIR,—I will, if I may, trespass once more on your columns in reply to Mr. T. Sumner Smith. The abstract of Mr. Smith's paper in *The Builder* and the ensuing correspondence places the whole before practical men, quick to analyse the value of any proposal, assimilate the useful, and reject the useless and impracticable.

Mr. Smith submits that in the "billing" of quantities labour should be separated from materials, the latter to be stated in quantities as usually purchased. Such bills would, he believes, be practical, accommodating to all points of view, and progressive. I submit that the system is by no means new, its possibilities have been explored, and that, if it had been found practical and useful, it would have been the method adopted for "billing" quantities long ago. It is not enough to condemn the present system of "billing." No one believes it perfect; it may creak a bit at times, but it is continuously in process of being adjusted to meet ever-varying standards and conditions along natural lines.

Mr. Smith's basis for his system is "standardisation." I think it must be fairly obvious that the standardisation necessary even to launch his system would have to be very far-reaching. For instance, in Table No. 1 of his example he gives:—

43,020 No. Common bricks, as before specified.
41,225 No. Labour only setting common bricks in lime mortar.

But he does not complete the example with the item for mortar. Now, how is the surveyor to measure mortar without there being first drastic standardisation of brick sizes? There are at least three different sizes of bricks in this locality—the contractor's favourite, working 4 to 13 in., the brickmaker's favourite, working 4 to 11½ in., and the architect's favourite, working 4 to 12 in. Shall the surveyor attempt to force the architect's favourite as a standard and so compute his mortar, or risk a variation at settlement, or should this item wait over until varying clay strata are manipulated to fit an agreed standard?

The present system follows always closely behind standardisation of any material—very keen minds see to that. One may object to the anomaly of "rods reduced" as such, but the basis at least forms a unit of exact standard measurement generally accepted at present; it is practical because it states what the architect requires, what the contractor supplies, and what the client pays for. To go beyond in this one instance and "bill" on Mr. Smith's system would require standardisation of bricks at the least, and I am not sure but that it would require standardisation of the amount of mortar to be used by each bricklayer.

Mr. Smith says: "The ordinary system of quantity surveying in vogue in the building trade lumps all these together (*i.e.*, labour and materials), which makes it practically impossible to formulate a correct estimate without a minute analysis of the component parts—a colossal task." He believes this "colossal task" should be passed on to the surveyor. Really and reasonably the analysis of such items requiring it are generally accepted to be the contractor's risk; he expects the surveyor to measure to the latest accepted standard and no more.

HENRY J. DYER.

SIR,—Mr. F. G. Butters, although no doubt unintentionally, has misunderstood me if for one moment he imagines I am out to criticise estimators for correction; and misrepresented me by putting forth a statement of his own, asserting it as mine, and terming it absurd. Incidentally, I may point out to Mr. Henry E. Lowe that I am not "trying to teach contractors how to keep their prime-cost accounts," nor am I "making a great mistake." I shall try to show why this is not so.

The modern method of teaching is to arrive at a decision through discussion, and this method embraces all the past experience of teaching. Decisions are also arrived at through discussion by Whitley Councils, and by works committees (as distinct from shop stewards) where they are in force, in matters concerning conditions of employment. And even in matters of wages disputes decisions are as a rule arrived at through discussion. There is nothing new in this, because legal decisions have invariably been arrived at through discussion, and legislative enactments from time immemorial have been decided through discussion; when not there is a "deuce to pay." All I have sought to do is to arrive at a decision on several matters through discussion. I have stated a case, set forth my arguments in its favour, and put the case up to discussion for a decision. It is for the profession and the trade to say whether they will or will not have it. Were I an autocrat with invested powers I should not enforce it, although it might be in the interest of all to do so, just as the Board of Trade, one may rest assured, will not by enactment enforce a standard system of measurements for housing and public works. The Board of Trade recognises the value of decision (solution) through discussion, as is evident by the establishment of a committee to formulate a standard system of measurements in quantity surveying. Some little time ago the National Federation of Building Trades' Employers brought forth a Building Code, and, without going into the why and wherefore of this, it is sufficient to say it did not at the time fructify. Ere long it will reappear, a Code decided upon through discussion. I hope Mr. Lowe will accept my version, which is: I have tried to enlighten the profession and the trade upon matters which are, in my opinion, an improvement on the existing methods, and up to the present remain unshaken. Quite a large number have veered round to my view, and I have a good many warm admirers, for which appreciation I am grateful. Thanks are also due to those who have taken part in the discussion; it is a help towards a decision. We shall only arrive at a conclusion by first stating our difficulties and differences; then will follow a solution on the lines of compromise that will approximately focus all points of view.

Mr. Butters confuses the issue by misrepresenting my solution "net profit." When I stated that the schedule rate or selling price is represented as 100 per cent., it must be obvious that the "standard measure" used in this instance will not permit of use for any quantity beyond 100 per cent. For example: Suppose we had a gallon as a standard measure for a particular compound, and it contained two kinds of liquid in some proportion to each other, one whose measure must be quarts and the other pints. We could only put in a maximum of three quarts of one kind, otherwise there would be no room for the other kind. Similarly, when the standard measure is represented as 100 per cent., the profit and the net cost together must not exceed that standard measure, namely, 100 per cent. Hence, when the profit is as high as 99.9 per cent., there would still be a margin of 0.1 per cent. representing net cost. In very few cases would profit exceed this amount: therefore, this standard measure should suffice for all practical purposes in the building trade.

I gather from Mr. Young that he does not favour a bonus system, but prefers varying rates to suit individual workmen, and in no case below a minimum. Whatever may be the merits or demerits of this system, estimators would need to go in for a course of mental calisthenics, for it would require something of the kind to estimate the value of work, seeing that there might be scores of varying rates of pay. Even Mr. Lowe must admit it would be too much for those quantity surveyors whose method of arriving at values of measured work is by a combination of observation and judgment.

Mr. Lowe makes use of the word observation in another sense. He says it is the principal way the contractors have of ascertaining if a particular item is paying. Taking mental records by sight observation only cannot possibly be as reliable as records taken by systematic methods, and judgment based upon observation is surely not as reliable as that based upon ascertained facts. If experience depends solely upon sight observation then it rests upon an insecure foundation. Quantity surveyors do not rely on judgment founded on sight observation in the ascertainment of the quantity of work, but on a systematic mode of measurements. Any two surveyors can arrive at almost identical results independently of each other by the same means; but no two surveyors will arrive at almost identical values based upon a combination of observation and judgment, even when of equal experience. In the former there is some form of standard by which they can check each other and agree upon minor variations, but in the latter it is experience against experience, and in order to adjust their differences and arrive at an agreement they have to accommodate each other by compromise—solution through discussion. It should be no longer necessary to arrive at the value by decisions through discussion on every job. A standard could be set up by a system of costing—decisions through discussions applied beforehand—by which they could check each other and agree upon minor variations.

Mr. Lowe does not rely on observation and judgment in pricing, for he says, "I always make my own figures, based upon labour and materials." Practical bills of quantities and costing would furnish data that should facilitate this task and ensure accuracy. When these two are standardised, and in reply to Mr. Young's question, there would still be competition—intelligent competition. The £ sterling is the final term in almost every equation which arises in the practice of building in all its branches. The true function of a contractor is, or should be, not only to know how problems

of building may be solved, but how they may be solved economically. Obviously, any contractor can build, but not always economically, and that is what is required of a contractor. His function is not only to build, but also to build so as to ensure the best economical results. He who does good work which can be executed at a fair cost is a sound and usually a successful contractor; he who does the best work at the lowest cost sooner or later stands at the top of his trade, and usually has the reward which this implies. Management, and all it involves, should be the key-note in competition.

Let Mr. Henry Young take his cue from other trades—as an example, the spinning section of the cotton industry, where the raw cotton is manufactured into spun yarn. At any time, he could ascertain what all spinners are paying for raw cotton and what they are receiving for spun yarn. It is so uniform that it is almost beyond imagination that there could be competition in this trade, or that there could be hundreds of separate firms in this trade; but were he to pay a visit on any Tuesday or Friday to the Manchester Cotton Exchange it would be a revelation to him. In every instance it is one of management—judicious buying of cotton, process, manufacture and organisation on the best plan, and selling at an opportune time. Broadly speaking, the spinner is governed by the market prices ruling, and his buying and selling are controlled by his methods of manufacture. The question of what is, or what should be, the nature of competition desirable in the building trade is one that is solvable through discussion. Should it be on "cutting rates" only?

At the present time we have the Building Trades' Parliament considering management and costing, a committee considering the formulation of a standard system of measurements in quantity surveying, and conferences between the builders and the various professional bodies considering a Building Code. These can mean none other than arriving at solutions through discussion. My only query is: Is the basis of discussion broad enough?

And now let me give a few examples that have come before my notice, and upon which I would like to have the opinion of those surveyors and estimators whose experience or method "is based upon a combination of observation and judgment."

First, how would they arrive at a price for each of the following items? And, second, are the quantities (apparently the lead has been measured to the lb.) such that a price can be fixed to cover the work given in the descriptions?

cwts.	qrs.	lbs.	
1	3	25	4 lbs. milled lead and labour in laying to roof above porch canopy, securely copper nailed and well burned to lead flashings in wall.
—	1	22	3 lbs. lead flashings to last, and well lapped, secured with lead wedges and pointed in cement, ¾-in. in brickwork.

yds.	ft.	
38½	— Lin.	5 in. c.i. half-round eaves gutters, medium strength, jointed in red lead, bolted and w.i. strap hangers, 4ft. apart, secured to spar feet.

All the above materials to be the best of their respective kinds, all flashings to be neatly dressed down and supplied to and built in by plumber or other tradesmen at plumber's expense where necessary.

The prices to include for all materials and labour and for proper fixing and completion.

As the above refers to the plumbing trade I will give a series for the painting trade:—

Schedule rates required for:—

2 coats painting on wood or ironwork	@	per sup. yd.		
2 ,, ,, ,, walls	@	,,	,,	,,
2 ,, ,, ,, ceilings	@	,,	,,	,,
3 ,, ,, ,, terra cotta	@	,,	,,	,,
2 ,, varnishing on woodwork	@	,,	,,	,,
2 ,, ,, ,, ironwork	@	,,	,,	,,
2 ,, ,, ,, wall	@	,,	,,	,,
2 ,, distempering on ceilings	@	,,	,,	,,
Staining green & French polishing	@	,,	,,	,,
French polishing	@	per sq. ft.		

T. Sumner Smith.

THE COST OF BUILDING IN SCOTLAND.

The Government Committee of Inquiry into the high cost of building working-class dwellings in Scotland held a further series of meetings in Edinburgh last week. A number of witnesses were examined.

Mr. W. E. Whyte and Mr. P. C. Smith (District Clerk and Architect respectively to the Middle Ward District of Lanark) made a further appearance. Questioned as to the proposals for placing the control and supply of materials under a committee in close association with the Board of Health, Mr. Whyte said in his opinion the shortage of bricks, tiles, &c., was likely to continue for some time, and it was, therefore, necessary to have an authority responsible for the equitable distribution of these materials among the local authorities. Such authority should have power to arrange prices with manufacturers, and where necessary to advance capital for laying down new plant. The housing conditions in the Middle Ward of Lanark were still wretched, and to bring the area up to a decent standard of housing accommodation certain villages would require to be swept away entirely. The people who were inhabiting these houses at present could afford to pay the rents the local authority proposed to charge for the new houses. The area had not the same proportion of casual workers as, say, Glasgow or Edinburgh. The local authority had not been very successful in inducing the owners to put these houses into a habitable condition, and the law at present was not effective beyond requiring the removal of actual nuisance and the introduction of the ordinary conveniences where practicable. The houses generally were incapable of reconstruction. Details of works carried out by the local authority by direct labour showed that the work had been carried out more cheaply than the estimates of private contractors. The building of houses in Lanarkshire in brick was revolutionary. Lanark was a stone county, and there was a large number of quarries, some of which had been closed and some of which were carrying on in a precarious condition. The Board of Health was prepared to allow building in stone so long as the stone construction did not work out at £50 more than brick construction, but so far his local authority had been unable to obtain tenders within this limit.

Mr. Archibald Johnston (cement merchant, Glasgow) said in London cement could be obtained at 86s. 6d. per ton; in Glasgow the price was 138s. 3d. per ton. The difference could not be accounted for by the freight and other charges. These were the prices laid down in the Cement Makers' Federation Schedule List of Prices, and were a matter for the cement manufacturers who fixed the prices. He understood, however, that there would be a reduction very shortly which might amount to more than 20s. a ton. The proposed reduction was on account of the reduction of wages, fuel, freight, &c. He was of opinion that the Scottish price was too high and ought to be reduced. He favoured the immediate abolition of the Department of Building Materials Supply. He had never considered this Department necessary, as far as cement was concerned, as the manufacturers and merchants could themselves see to the distribution of cement.

Sir Thomas Munro said in his opinion the main cause of the extremely high costs at present was that too much had been attempted within too limited a period. It would have been a wise policy to have dealt first with the absolutely urgent problem, namely, the housing of the houseless, and then to proceed with the substitution of good houses for the present inferior ones. As a temporary expedient it would have been possible to have so improved existing inferior houses as to make them fit for human habitation without risk to health. He also thought much might have been done immediately after the Armistice to employ workers who had been engaged in various Government factories, as, for example, in aeroplane making, on making doors, frames for windows, &c., on a large scale, according to a standardised specification. This might also have been adopted in regard to metal fittings. Better provision ought to be made for enabling existing houses to be improved. Many houses, especially in the rural areas, were well situated, had convenient water supplies, and pleasant surroundings, while the houses themselves had either fallen into disrepair or required structural improvement. The judicious expenditure of money to effect these improvements would probably have produced houses as comfortable as, and in most cases more desirable from the point of view of amenity and accessibility than, the new houses. He was in favour of making the subsidy to private persons available for the improvement of such houses. Everything possible should be done to encourage private enterprise in housing. The private subsidy was very much cheaper to the State, and he thought it would pay to increase the amount. He thought the Department of Building Materials Supply had, judging by results, done well. It should, however, be in closer touch with the Board of Health.

Mr. H. M. Murray and Mr. D. Gibson (Scottish Public Works Contractors' Association) submitted evidence in support of their contention that the wages paid for building labourers were at present too high and were an important factor in the high costs prevailing. The firms which they represented employed much navvy labour. They could secure navvy labour from 1s. 3d. to 1s. 9d. per hour, but, owing to the fact that builders' labourers were paid 1s. 11¼d. per hour, it was found they had to pay the highest rates where their labour was employed in the vicinity of housing schemes. They had cases where members were obliged to pay 1s. 10¼d. per hour while working for the local authority, whereas in the same district 1s. 4d. per hour was paid for work outside the scope of the local authority.

Mr. George R. Toynbee (builder) said on an average bricklayers laid between 450 and 500 bricks per day, and he had many examples of greater output. On the whole, while the average output was less than it was before the war, there was little room for complaint against bricklayers. It had to be remembered that a number of the best men were lost in the war, the physical efficiency of others had been impaired, and others had learned slack habits. It had also to be remembered that the very bad quality of bricks which were sometimes supplied and the delays which occurred in supplies had a serious effect on the output of the bricklayers. There were, however, many men who were doing as much as they did in pre-war days. The downward tendency of costs would probably continue for some time. Bricks, for example, would probably be reduced. He had examined the claims made for Belgian cement, and as it appeared to conform with the British specification as regards strength, &c., and was nearly 50s. per ton cheaper than Portland cement, he thought it would be advisable to consider seriously its use on housing schemes. He advocated the abolition of the Department of Building Materials Supply on the ground that the Department's activities must have increased the cost of houses and was serving no useful purpose to the contractors. The supply of labour for building was improving, apprentices were being attracted to the trade, and probably in two years' time there would be a very noticeable and substantial increase. He deprecated the standard of construction of the new brick houses, and expressed serious doubts as to whether they would last sixty years. The construction was very slim, and he thought it would have been advisable to use stone more liberally in the housing schemes.

Palestine.

Palestine has a population of some 750,000, or an average of 75 inhabitants to the square mile, and it is said there is room for many millions of Jewish immigrants without "squeezing out" the present inhabitants. The house shortage, however, is as acute there as everywhere else, and for every 50,000 immigrants at least five thousand two-story houses would have to be built.

THE BUILDING TRADE.

SCIENCE APPLIED TO BUILDING PROBLEMS.

IN the eighth lecture of the series dealing with "Science Applied to Building Problems," now being delivered at the Northern Polytechnic Institute, the lecturer, Mr. R. R. Butler, B.Sc., A.I.C., F.C.S., dealt with properties of copper, lead and zinc from the practical standpoint. The following is an abstract of his address :—

The extraction of copper, lead and zinc from their ores involves in each case the use of the reverberatory furnace. Calcination of pyrites in the furnace produces in the first place a mixture of copper oxide (Cu_2O) and copper sulphide (Cu_2S). Increased heating results in a chemical reaction occurring between the two compounds, which may be expressed thus :—

$$2\,Cu_2O + Cu_2S \rightarrow SO_2 + 6Cu.$$

The sulphur dioxide passes away in the flue gases, leaving behind impure copper, which, because of its appearance, is known as "blister copper." This is then re-melted, stirred with poles of green wood, and anthracite is thrown on to the surface of the metal. The product is copper in a suitable condition for casting. If very pure copper is desired, as in the case of the metal used in the phosphor-copper filling rod employed in oxy-acetylene welding, the metal is deposited electrolytically from a solution of copper sulphate, a very thin sheet of pure copper being used as the negative pole upon which the pure copper collects.

The impurities which may occur in commercial copper in sufficient quantity to affect the properties of the metal are sulphur, lead and bismuth. Of these the most objectionable is bismuth, 0.05 per cent. of which is sufficient to affect the malleability of the copper. Copper oxide dissolved in the metal gives the fracture a yellowish colour. The alloy, "copper oxide in copper" (containing about 4 per cent. oxide), has a melting point of 1068° C., as compared with 1090° C., the melting point of pure copper.

In the oxy-acetylene treatment of copper, the tendency of the molten metal to oxidise and thereby produce weak welds is overcome in two ways : (*a*) by a satisfactory filling rod ; (*b*) by a suitable flux. The most satisfactory filling rod is one containing less than 0.1 per cent. phosphorus, the remainder being pure (electrolytic) copper. The phosphorus present in the rod unites with any oxygen which the molten metal may absorb, forming phosphorus pentoxide, which passes into the atmosphere ($4\,P + 5O_2 \rightarrow 2\,P_2O_5$). The copper, which is thus freed from oxide, is further protected by the thin skin of molten flux floating on the surface of the weld. Such a flux must have the property of fusing just before the metal melts, forming in this way a viscous fluid which the blast from the welding torch cannot entirely disperse. It is found that a suitable flux for this purpose consists of the following mixture :—

Borax, 40 per cent.
Salt (sodium chloride), 40 per cent.
Boracic acid, 20 per cent.

Referring to the chief alloy of copper, namely, brass, the lecturer again referred to the welding process. Three possible dangers have to be overcome in the welding of brass :—

(*a*) Volatilisation of the zinc. Brass consists mainly of copper and zinc, and any loss of zinc results in the welded metal having a higher percentage of copper than has the remainder of the brass.

(*b*) Absorption of gases from the flame. This may result in the production of blowholes, and a porous condition in the weld.

(*c*) Oxidation of the metal. Both zinc and copper readily oxidise at the temperature of the oxy-acetylene flame.

To overcome these difficulties, a suitable filling rod should consist of brass containing a deoxidising agent, and for this purpose a small percentage of aluminium is frequently introduced. The molten metal should be protected by a flux, and a mixture consisting of borax, salt and boracic acid, similar to that used for work on copper, is efficient.

Copper sheeting, exposed to the action of moist air and large quantities of carbon dioxide (in crowded industrial centres), becomes coated with a basic carbonate of copper having the approximate formula $Cu(OH)_2.CuCO_3$. This compound has poisonous properties, and is known as "verdigris." It should be noted in this connection that the basic acetate of copper is also poisonous, and is also called "verdigris," the word being loosely used to indicate both compounds.

Turning to the study of lead, the lecturer indicated the extraction of the metal from the sulphide (galena) by the process of roasting, with the final production of crude lead by the interaction of the oxide and the sulphide, as in the case of copper ($2PbO + PbS \rightarrow 3\,Pb + SO_2$). Lead, as obtained commercially, is almost pure, having been subjected to a prolonged treatment in which other impurities, notably silver, are removed. The coefficient of expansion of lead is 0.000029 per deg. C., and it is, therefore, necessary to allow for this high expansion when working with lead sheeting.

Lead is soluble in soft water, but insoluble in hard water. The lecturer showed a specimen of soft water in which a strip of lead had dissolved sufficiently to give a characteristic brown coloration when a solution of sulphuretted hydrogen was added to it. A specimen of hard (tap) water in which a strip of lead had been standing for an equal length of time had not attacked the metal. In order that water may dissolve lead, it would appear that the presence of dissolved oxygen and dissolved carbon dioxide in the water are essential. The chemistry of the reaction can be represented in the following way :—

$$\underset{\text{(Lead)}}{2Pb} + \underset{\text{(Oxygen)}}{O_2} \rightarrow \underset{\text{(Lead oxide)}}{2PbO}$$

Then—

$$\underset{\text{(Lead oxide)}}{PbO} + \underset{\text{(Water)}}{H_2O} \rightarrow \underset{\text{(Lead hydroxide)}}{Pb(OH)_2}$$

and finally—

$$\underset{\text{(Lead hydroxide)}}{Pb(OH)_2} + \underset{\text{(Carbon dioxide)}}{CO_2} \rightarrow \underset{\text{(Lead carbonate)}}{PbCO_3} + H_2O$$

Erosion of lead pipes may be of two kinds—(*a*) Actual solution of the metal ; (*b*) Production of a loose powder, swept along by the flow of the water. In this connection, it should be remembered that peaty waters, frequently met with in the north of England, contain small quantities of acid substances which assist in the solution of the lead. Water containing more than one-twentieth of a grain of lead per gallon may produce mischief, since the action of lead in the stomach is cumulative.

Amongst the many industrial alloys containing lead, the lecturer mentioned "Wood's fusible metal," consisting of : Lead, 2 parts ; bismuth, 4 parts ; cadmium, 1 part ; tin, 1 part ; and demonstrated the fusibility of such an alloy in boiling water.

White lead, a basic carbonate, having the approximate formula $PbCO_3.Pb(OH)_2$, and chrome yellow (lead chromate, $PbCrO_4$) were referred to by the lecturer, who prepared a specimen of each pigment.

Lastly, the industrial uses of zinc were discussed. Zinc blende (ZnS) roasted in the reverberatory furnace is converted into the oxide ZnO :—

$$2ZnS + 3O_2 \rightarrow 2ZnO + 2SO_2$$

The oxide ZnO heated with powdered coal in cylindrical fireclay retorts about 4 ft. long and 10 in. diameter produces the metal, according to the equation

$$ZnO + C \rightarrow Zn + CO.$$

The metal distils over (the boiling point of zinc is only 930° C.) and is collected in suitable receivers. Zinc is not very malleable at 20° C., becomes malleable when heated to between 100° and 150° C., and is brittle again at 210° C. The chief impurities present in sheet zinc are arsenic, carbon, lead, cadmium and iron. Of these the most damaging is lead, which is seldom present. 1.5 per cent. lead prevents the metal being rolled into sheets.

The corrosion of zinc may proceed in three ways :—

(*a*) Direct solution of the metal in the weakly acid rain of cities—

$$\underset{\text{(Sulphuric acid)}}{Zn + H_2SO_4} = \underset{\text{(Zinc sulphate)}}{ZnSO_4} + H_2$$

(*b*) Electrolytic action between the iron (impurity) and the zinc, in the presence of a conductor such as slightly acid rain.

(*c*) Corrosion due to the action of free lime on zinc. Cements destroy zinc owing the action of the lime, which being strongly alkaline, has the property of combining with the metal, forming a calcium zincate and thereby destroying the metal.

Galvanising, the lecturer stated, has no connection with the "galvanic battery," but is merely the dipping of (say) sheet iron into a bath of molten zinc, with the production of a thin protective skin of zinc which prevents the rusting of the iron underneath.

In conclusion, the lecturer referred to the use of zinc white (zinc oxide) as a substitute for white lead. The latter tarnishes in the presence of an atmosphere containing sulphur fumes, while the zinc oxide exhibits no colour change. The subject of colours will be treated more fully in the lecture on "Paints and Varnishes."

WAGES IN THE BUILDING INDUSTRY.

WE have received the following communications in reply to Mr. Thos. Foster's letter in our last issue :—

SIR,—Mr. Foster will doubtless recall that right throughout the world of sport there are certain rules to be observed by the contestants, and this in the present has application in that whilst any case is *sub judice* it is not considered to be in the best of taste to comment thereon.

On April 21 and 22 a Joint Council sat at the Connaught Rooms and heard evidence from both sides upon the National Wages and Conditions Council proposed sliding scale of wages. That body is composed of twenty representatives of the employers and twenty representatives of the operatives, and a chairman in whose impartiality both sides have expressed their satisfaction—which, by the way, is, in this instance, the greatest possible compliment ever paid by one party to another on a joint council. After these sittings terminated, both sides agreed to adjourn until May 5 and 6, and in the meantime to deliberate upon the evidence. That being the case, it is somewhat surprising that anyone should take it upon himself to voice the claims of either party in the interim.

Clause II, Document 2, makes provision for arbitration, but there is no evidence that, up to the moment, any actual appointment in that capacity has been made.

H. BRYANT NEWBOLD,
Editorial and Organising Secretary
National Federation of Building Trades' Employers.

SIR,—When one remembers how the members of the Industrial Council passed a unanimous resolution that no Committee reports should be published until they had been at least con-

sidered by the Council, in consequence of the untimely publication of the Report of the Costs and Management Committee, of which Mr. Thos. Foster was Chairman, one might have a good deal to say on the bad taste, to say the least of it, of criticising the National Wages and Conditions Council, on which he has not been elected a member, when the matters which were laid before it were and are *sub judice*; but when the criticism is founded, on his own admission, on "what it is reported to have done," and that he admits his "difficulty in getting at the actual facts, as only very meagre reports have appeared in the Press," and "as far as one can make anything out," &c., then the folly and worthlessness of such criticism are manifest.

Of Mr. Foster's sincere desire for the permanent improvement of the building industry, and particularly the operatives therein, I not only have no doubt but am convinced, but the means he adopts to achieve the end he has in view I emphatically condemn. There are many well-meaning people, both in the industry and outside it, who "rush in where angels fear to tread," but they are known by a different name!

I do not propose to follow Mr. Foster's lead (or invitation!) into the details of reductions of wages or any other matter which is being dealt with by the Council, but would recommend him to seek authentic information from the duly accredited person who represents him, through his region, on the Council, and he will then perhaps learn that the employers on that Council are not lacking in the very virtues he suggests are necessary, and from my personal knowledge of them, I am certain that each one is quite as desirous and capable of "imagining what he would do were he in the place of the workman" as even Mr. Foster himself, and perhaps more so.

Mr. Foster concluded by dealing with a subject with which he should be more familiar, being more of a decorator than a general building contractor, but when one reads his criticism of certain "builders, regarding painters' wages," one can only smile. Mr. Foster should try to take a broader outlook over the subject and not view it solely from the point of view of a master painter and decorator. Surely he does not mean that a man (ordinary labourer, and frequently less skilled than that) who takes a brush and smudges on paint or tar or other matter on any rough work shall be classed a "brush hand," and so be entitled to the same rate as the mechanics in the other crafts.

No one can disagree that "what is required is that in every craft there should be a higher standard of knowledge and skill," but the way best to ensure that result is to pay a painter and decorator who possesses the "higher standard of knowledge and skill" a rate commensurate with such, and not call a man a painter and entitled to the painters' rate just because he handles a "brush," which might be equally efficiently done by any labourer to whom the task were assigned.

Perhaps Mr. Foster will practise the virtues of patience and charity; the former to await the decisions, or the failure, of the N.W. & C.C., and the latter by giving credit to other employers of possessing the very virtues he admires and advocates.

ROLAND B. CHESSUM,
Member of National Wages and Conditions Council.

Employment in Lead Processes.

The Home Secretary proposes, in pursuance of the Women and Young Persons (Employment in Lead Processes) Act, 1920, to make the following Orders: (1) The occupier to provide and maintain suitable accommodation for clothing put off during working hours; (2) suitable and adequate arrangements for taking meals; (3) suitable washing facilities. Copies of the draft orders may be obtained from the Secretary of State, Home Office, S.W. 1, and any objections must be lodged within twenty-one days from the date of the notice (April 29, 1921).

THE CONCRETE INSTITUTE.

THE MODULUS OF ELASTICITY IN CONCRETE.

At the last meeting of the Concrete Institute, held at Denison House, Vauxhall Bridge-road, S.W., on April 28, Professor F. C. Lea, O.B.E., D.Sc., M.Inst.C.E., read a paper entitled "The Modulus of Elasticity in Concrete," in the course of which he said engineering theories were only justifiable in so far as they were consistent with experience or could be directly verified by experiment, and it was of the utmost importance that the fundamental assumptions underlying the theory of elasticity and the theory of structures should be from time to time critically examined. In all calculations relating to reinforced concrete structures the all-important fundamental assumption was made that the ratio of the modulus of elasticity of steel to the modulus of elasticity of concrete was known, and for a particular structure was constant for all stresses. Mild steel, whether in compression or in tension, gave a stress-strain curve which, within the so-called elastic limit, approximated very nearly to the ideal straight line, or, in other words, obeyed almost perfectly Hooke's law. Further, the value of the modulus of steel (Es) was not a very variable quantity. It was doubtful if for the kinds of steel used in reinforced concrete work the modulus varied more than 5 per cent. from one sample to another, and the modulus of elasticity in tension probably did not differ from that of the steel in compression by more than 5 per cent.

The ordinary theory of beams and long columns assumed the ideal elastic behaviour of material, and in the case of properly designed steel elements experiment showed that within certain limits of stress the ideal assumptions were justified.

Good steel was known to consist of crystals of ferrite surrounded by pearlite; and consistent with the discontinuity between the crystals its structure could be said to be very homogeneous as compared with concrete, which was made up of three such variable materials as cement, sand or other fine material, and large aggregate. It was hardly to be expected that such a conglomerate would have elastic properties as perfect or as constant as the more homogeneous steel, and it became important therefore to determine:—

(1) The form of the stress-strain curve for concrete, and thus the value and possible variation of the modulus of elasticity;

(2) What were the possible limits of error in making assumptions which were not ideally justified by experiment.

In making calculations relating to the design of beams, the tensile strength of the concrete in tension was generally neglected. In columns, unless there was eccentric loading, the material was in compression. It would appear, therefore, only necessary to determine as accurately as possible the stress-strain curves for concrete in compression, from which the ratio Es/Ec (which the theory demanded to be known) could be obtained. As a check, however, it was desirable that elastic tests on beams should also be made, not only to determine the deflections produced under certain conditions of loading, but to determine the actual strains produced so that they could be compared with the ideal strains assumed, and the position of the neutral axis of the beam, as experimentally determined, compared with that given by the theory.

Another and incidental, but not unimportant, result of such inquiry would be that some light might be thrown on the problem of the degree of uniformity of distribution of stress across the section of a strut or on lines parallel to the neutral axis on the section of a beam. The paper gave the results of experiments that had been carried out recently at Birmingham. They were by no means complete, as, owing first to the war and second to the very heavy pressure on time and conveniences for experimental work since the war, progress had not been so rapid as might have been desired, but the experiments had involved a good deal of labour.

Before the modulus of elasticity of any piece of concrete could be stated, it would be necessary to know, not only its composition and the quality of the materials in the concrete, but also its previous history so far as loading was concerned. Thus it would be seen that the very data required for the calculations in connection with a particular class of concrete could only be known within a certain degree of approximation.

The results of the tests might be summed up as below:—

Proportion of Cement by vol. of Wet Concrete.	Ratio by vol. of Sand to Stone.	Crushing Strength at 28 days. Lb./in.²		
		D.B. Gravel.	H. Q'rtzite.	Rowley Rag.
20%	1 : 1	—	1800	1800
,,	1 : 1½	2500	2300	2100
,,	1 : 2	2500	2500	2500
,,	1 : 2½	2500	—	—
25%	1 : 1	—	2500	2600
,,	1 : 1½	3000	3100	2700
,,	1 : 2	3200	3200	3200
,,	1 : 2½	3300	—	—

It was clear from these results that with the two stones (quartzite and Rowley rag) as aggregates, the ratio of sand to stone as 1 : 2 was the best; while with the D.B. gravel as aggregate there was but little difference between the 1 : 2 and 1 : 2½. With the ratio of 1 cement to 2 sand, all three aggregates gave the same strength.

Experiments on beams to determine the modulus of elasticity by measuring the strain in the beam went to show:

(1) That the modulus of elasticity of concrete was a very variable quantity, but for a particular mixture the modulus could be fairly definitely obtained by determining the slopes of the third or fourth loading stress-strain curves, taken from blocks of concrete three months old, and that the values so obtained would approximate very closely to those determined from strain tests on beams.

(2) If such a value could be given to the modulus of elasticity of concrete then the neutral axis as determined by calculation would agree fairly well with the experimental position of the neutral axis, and thus the stresses to be expected could be estimated with reasonable precision.

The compressometer tests on columns and also the bending tests on beams showed clearly that it was very difficult indeed to ensure uniform distribution of stress in concrete. The column specimens were hand-ground at the end to make them sit as smooth as possible and they were then loaded through a spherical seating. In the beam experiments the differences of strain at the same distance from the neutral axes on the two sides of the beam were as great as 16 per cent. That could only be accounted for by larger stresses on one side of the beam than the other, due to the non-homogeneity of the concrete or perhaps partly due to the eccentricity of the reinforcement. If the reinforcement was slightly displaced, or the adhesion was not uniform on the bars, excess strain might be set up in one side of the beam. It would appear, therefore, that in designing concrete columns and beams, however carefully they were to be loaded, an allowance for a possibility of stresses from 10 to 20 per cent. above the mean calculated stress, as given by the ordinary formulæ, should be made.

Ex-Service Men in the Building Industry.

Dr. Macnamara (Minister for Labour) informed Captain Viscount Curzon in the House of Commons last week that applications had been received from 5,453 ex-Service men on April 23 for employment under the Government scheme for employment in the building trade. In the London district 3,124 men had applied. A few were already at work under the scheme in London and the southern counties.

NEW INVENTIONS.

MULTIPLE HOUSEHOLD STOVE.

The new type of household stove illustrated on this page has been patented by Messrs. Nance & Tozer, builders and contractors, of 6, Marine-crescent, Bexhill, and 212, Holland Park-road, W. 14.

The invention is a multiple stove designed to provide means whereby a circular fire grate is utilised to heat one, two, three, or four rooms, as required, and as a cooking range with access to the hot plate and oven from any one of the rooms heated by the fire. The oven is arranged beneath the circular fire grate and is heated from above, and by its domed shape throws the ashes clear into a movable receptacle arranged beneath the fire grates of each room heated by the fire. If the fire is not required to heat any one or more of the rooms, means are provided to close the fire grate in such room or rooms.

One or more circular flues are provided through the house at the place where the four walls of four rooms meet. At the base of the flue is arranged the domed oven, the oven front preferably facing the kitchen. A circular fire grate is arranged above the oven, its floor being formed by the apex of the oven dome. The oven is preferably provided with a double wall so that the body of hot air between the inner and outer wall of the oven, heated at the apex of the dome, entirely surrounds the oven. The grate bars of the circular fire grate preferably form a truncated inverted cone. Above the grate is arranged an open circular chamber, the floor of which forms the hot plate, which is provided with the usual circular openings for kettles, saucepans, and the like. One or more flue pipes are carried up from the fireplace to the flue proper above. The kitchen side of the circular hot plate chamber is left open so that the cook can conveniently manipulate kettles and saucepans upon the hot plate. The space above the hot plate can be fitted with shelves. Doors may be arranged on the walls of this circular chamber through which hot dishes can be taken out into any of the rooms as required. In order to allow of the removal of clinker from the fire grate, in one of the rooms (preferably the kitchen) the upper part of the grate is divided from the lower part and hinged so that it can be turned back to allow of access to the interior of the fireplace. The ashes fall into a collecting tray in front of the grate or oven arranged below the level of the floor. In an alternative construction the ashes may be directed to a tray through channels on one or either side of the kitchen grate. Ash doors in the sitting rooms may be arranged corresponding in form with the shape of the oven between the grate and the kerb. These ash doors are preferably made removable and fitted with handles by which they can be lifted out when desired. Sliding or hinged circular doors are arranged to close any one or more of the grates when it is desired not to heat one or other of the rooms from the fire. These doors are preferably packed with asbestos. The floor of the kitchen may be arranged at a lower level than the floors of the other rooms so as to reduce the height of the fireplaces in those rooms.

If desired, all the rooms can be fitted with mantel-pieces and ornamented so as to resemble in appearance as nearly as possible an ordinary fireplace or kitchen range. The fire-brick partitions are arranged between the grates of the rooms served by the fireplace. The top of the stove is cased in with asbestos or other suitable material to prevent heat from radiating. If desired, a boiler of any suitable type and radiators for the floor or floors above the ground floor served by the stove may be combined with the fireplace.

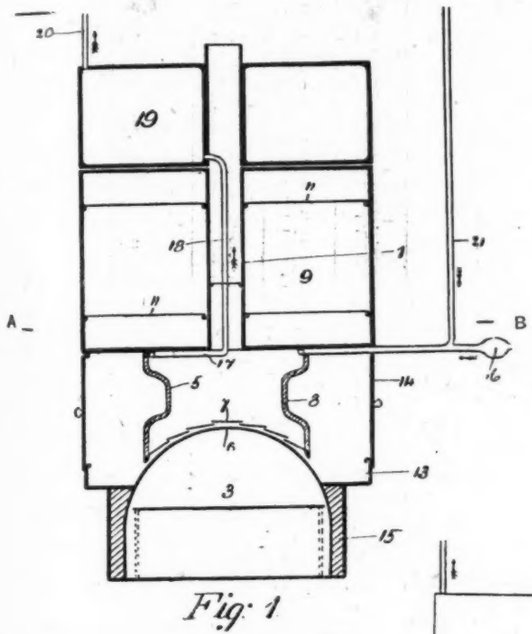


Fig. 1

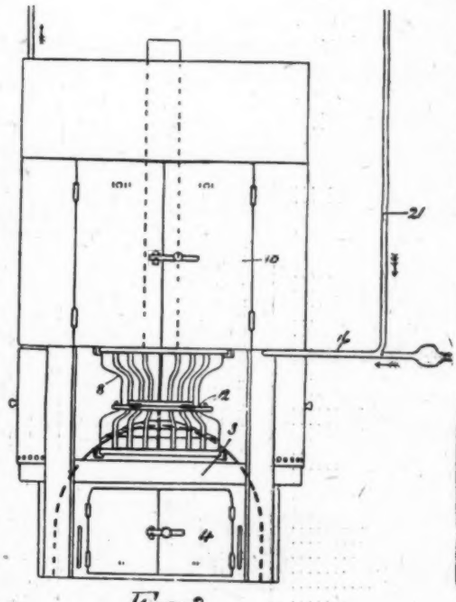


Fig. 3.

Multiple Stove.

FIG. 1. Sectional Elevation.

FIG. 2. Transverse Section on line A.B., Fig. 1.

FIG. 3. Front Elevation of Kitchen side of Stove.

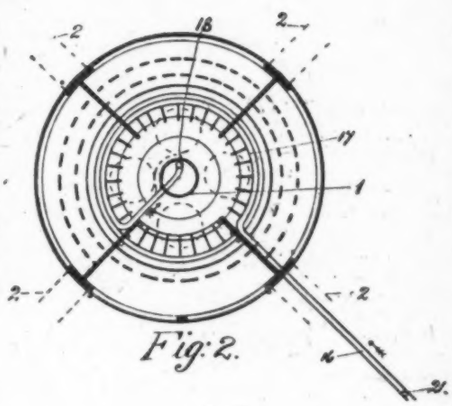
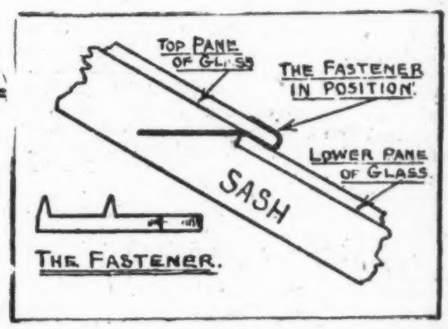


Fig. 2.

A NEW FASTENER FOR GLASS.

There are many disadvantages in the method of fixing glass to glasshouses, garden frames, &c., by means of brads on the outside. For example, owing to the expansion and contraction of both the wood and the glass the glass frequently cracks where bradded, and from the same cause the brads often work loose and fall out, leaving the glass unsecured; also, owing to the exposure to the weather the brads become rusted, and if the sashes are decayed on the outside it is practically impossible to secure a firm grip for brads to hold new glass in place.

A new device for fastening glass for such purposes has been brought to our notice by the manufacturers, Messrs. Furness & Richardson, of 61, Tweedy-road, Bromley, Kent, and which we illustrate below. It is in the form of a strip of metal with a hook at one end and two spikes along one side. As it is fixed on the inside of the sash it is not exposed to the weather, and further, as the inside of the sash is generally in good condition it can be used on wood which is too decayed outside to be reglazed by the usual method. The illustration shows the fastener in position on a frame where the sheets of glass overlap. The end of the metal strip is inserted between the two panes of glass from the outside until the edge of the upper pane is held in the hook at the other end, and the spikes are then driven into the sash from the inside. In cases where the sashes are too decayed outside to permit of re-glazing without renewing a large amount of woodwork, the device should result in a considerable saving.



New Fastener for Glass.

Industrial Welfare Society.

The Industrial Welfare Society is holding a conference of industrial medical men on June 2, at 51, Palace-street, Westminster, S.W. 1, when addresses will be given by experts in this branch of medicine.

THE BUILDERS' CLERKS' BENEVOLENT INSTITUTION.

ANNUAL DINNER.

SOME four hundred members and friends of the Builders' Clerks' Benevolent Institution assembled at the Holborn Restaurant on Tuesday evening last, on the occasion of the forty-first annual dinner of that Institution. The chair was occupied by Mr. Edmond J. Hill (President), and amongst those present were Messrs. Henry T. Holloway (Vice-President), C. J. Trollope, F. Shingleton, M.V.O. (President, Institute of Builders), Ernest Selby, R. J. Holliday, A. B. Colls, F. Higgs, J. M. Theobald, F.S.I., W. Matthew Hill, W. Lawrence (Hon. Treasurer), E. J. Brown (Director, London Master Builders' Association), Godfrey Sykes, B. Carter, junr., G. H. Hadland, Q.S.A., C. F. Hollowell, W. S. Dell, D. Mackness, A. J. Bristow, S. H. F. Pulley, T. H. Wilson, C. A. Ash, Wm. Cook, and John Austin (Secretary).

The PRESIDENT, in proposing the toast of "The Institution," said the Institution was founded in 1866. It had passed through many troublous times, and last year, owing to the generally increased costs, the scope of its activities and the pensions granted were increased. At present each male recipient of a pension received £40 a year, and each female £30, together with a gift of £3 per child under 16 years of age. Grants were also made in cases of urgent distress up to £75 in any one year. He would impress on the members of the building industry the absolute necessity for such an Institution, and appealed for further funds to enable it to carry on its good work. There was in the gift of the Institution a grant for the education and maintenance of an orphan child of a deceased builders' clerk by election of the Institution, and deserving cases would be considered by the Committee and dealt with on their merits.

MR. F. HIGGS, in proposing "The Architects and Surveyors," said, apart from housing schemes and a certain amount of re-building, there was not much work for architects nowadays; he hoped, however, that sooner or later the cost of building would come down and more buildings would be erected.

In response, MR. G. H. HADLAND, Q.S.A., said architects and surveyors had much for which to thank the builders' clerk. They had been told recently that the system of quantity surveying was altogether wrong, and that the component parts of a bill of quantities should be divided up, but he thought the adoption of such a system would lead to more confusion. Quantity surveyors grew out of the builder's office, and they got out bills of quantities in the way that had been found by experience to be easiest. Since the war, and the adoption of prime-cost contracts, the work of the quantity surveyor had been more or less altered, and he had become what might be called a "technical accountant."

MR. E. G. BROWN proposed the toast of "The Builders and Builders' Merchants," and said the builders were suffering severely at present owing to the small amount of building work going on.

In responding for the builders, MR. F. SHINGLETON said the health of the building trade could perhaps best be described as "a predisposition to sleeping sickness," brought on owing to the cost of building, which was too high to be economic. The output of labour was a great stumbling-block, and the staffs in builders' offices should do their best to counteract it, and help to get a fair day's work for a fair day's pay. Builders liked to see the workmen get a fair living wage, but they wanted to get value for money.

MR. C. A. HARMAN responded for the builders' merchants.

The toast of "The President" was proposed by Mr. H. T. Holloway, and a brief response by the President terminated the proceedings.

During the evening the President announced that the donations received in response to his appeal amounted to upwards of £750.

RATES OF WAGES IN THE BUILDING TRADE.

THE following are the present rates of wages in the building trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur :—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Bricklayers' Labourers.	Plasterers' Labourers.
Aberdare	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Accrington	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Altrincham	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Ashton-under-Lyne	2/4	2/4	2/4	2/4	2/4	2/5	2/4	2/0–2/0½	
Barnsley	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Barrow-in-Furness	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Barry	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Bath	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Bedford	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Birkenhead	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0½	
Birmingham	2/4	2/4	2/4	2/4	2/4	2/5	2/4	2/1	
Bishop Auckland	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Blackburn	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Blackpool	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Bolton	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Bournemouth	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Bradford	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Bridgwater	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/7½	
Brighton	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Bristol	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Burnley	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Burton-on-Trent	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
Bury	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Cambridge	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Cardiff	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Chatham	1/11	1/11	1/11	1/11	1/11	1/11	1/11	1/8	
Chelmsford	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Cheltenham	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Chester	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Chesterfield	2/6	2/6	2/6	2/6	2/6	2/6	2/6	2/1	
Colchester	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Coventry	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Crewe	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/10½–1/11	
Darlington	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Derby	2/1	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Doncaster	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Dudley	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
Durham	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
East Glam. and Mon. Valleys	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Exeter	2/–	2/–	2/–	2/–	2/–	2/–	1/11	1/9	
Folkestone	1/11	1/11	1/11	1/11	1/11	1/11	1/11	1/8	
Gloucester	2/–	2/–	2/–	2/–	2/–	2/–	1/11	1/9	
Grantham	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
Grays	2/4	2/4	2/4	2/4	2/4	2/4½	2/3	2/1	
Grimsby	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Great Yarmouth	1/11	1/11	1/11	1/11	1/11	1/11	1/11	1/8	
Guildford	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Halifax	2/1	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Harrogate	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Hartlepools	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Hastings	1/11	1/11	1/11	1/11	1/11	1/11	1/11	1/8	
Hereford	2/–	2/–	2/–	2/–	2/–	2/–	1/11	1/9	
Huddersfield	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Hull	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Ipswich	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Lancaster	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Leamington Spa	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
Leeds	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Leicester	2/4	2/4	2/4	2/4	2/4	2/4½	2/4	2/1	
Lichfield	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
Lincoln	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Liverpool	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0½	
Llanelly	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
London	2/4	2/4	2/4	2/4	2/4	2/4½	2/3	2/1	
Loughborough	2/4	2/4	2/4	2/4	2/4	2/4½	2/4	2/1	
Luton	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Maidstone	1/11	1/11	1/11	1/11	1/11	1/11	1/11	1/8	
Manchester	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Mansfield	2/4	2/4	2/4	2/4	2/4	2/4½	2/3	2/1	
Merthyr Tydfil	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Middlesbrough	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Newcastle-on-Tyne	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Newport, Mon.	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Northampton	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
Norwich	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Nottingham	2/4	2/4	2/4	2/4	2/4	2/4½	2/4	2/1	
Oakham	2/1	2/1	2/–	2/1	2/1	2/1	2/1	1/10	
Oldham	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Oxford	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Plymouth	2/1	2/1	2/1	2/1	2/1	2/1	2/–	1/10	
Pontypridd	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Portsmouth	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Preston	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Reading	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Rochdale	2/4	2/4	2/4	2/4	2/4	2/5	2/4	2/0–2/0½	
Rochester	1/11	1/11	1/11	1/11	1/11	1/11	1/11	1/8	
Rugby	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
St. Albans	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/8	
St. Helen's	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Scarborough	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
Sheffield	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Shrewsbury	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
Southampton	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Southend-on-Sea	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/11½	2/0–2/0½	
Southport	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
South Shields	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Stockport	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Stockton-on-Tees	2/4	2/4	2/4	2/4	2/4	2/4	2/4	1/11½	
Stoke-on-Trent	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/9	
Stroud	2/–	2/–	2/–	2/–	2/–	2/–	1/11½	2/1	
Sunderland	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Swansea	2/4	2/4	2/4	2/4	2/4	2/4	2/4	1/9	
Taunton	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Torquay	2/–	2/–	2/–	2/–	2/–	2/–	2/–	2/1	
Wakefield	2/4	2/4	2/4	2/4	2/4	2/4	2/4	1/11½	
Walsall	2/2½	2/2½	2/2½	2/2½	2/2½	2/3½	2/2½	2/0–2/0½	
Warrington	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
West Bromwich	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Wigan	2/4	2/4	2/4	2/4	2/4	2/4	2/4	1/9	
Windsor	2/–	2/–	2/–	2/–	2/–	2/–	2/–	2/1	
Wolverhampton	2/4	2/4	2/4	2/4	2/4	2/4	2/4	1/11½	
Worcester	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
York	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½		

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in; the name and address at the end is the person from whom or place where quantities, forms of tender, &c., may be obtained.

BUILDING AND PAINTING.

MAY 7.—**Athenry.**—ALTERATIONS, &C.—Alterations and additions, consisting of new chancel, side chapels, nuns' choir, sacristy, &c., at the Parish Church, Athenry, Co. Galway, for the Very Rev. Canon Farragher, P.P., Athenry. Mr. R. M. Butler, architect, 23, Kildare-street, Dublin.

MAY 7.—**Bridlington.**—HOUSES, &C.—Erection of 14 houses and 13 sets of farm buildings at Wilsthorpe Estate, Carnsley, near Bridlington, for the East Riding of Yorkshire C.C. Mr. J. Bickersteth, Clerk, County Hall, Beverley.

MAY 7.—**Cosgrove.**—COTTAGES.—Erection of two cottages and other works at Cosgrove, for the Northampton C.C. Mr. R. George, County Land Agent, County Chambers, Northampton.

MAY 7.—**Horsham.**—HOUSES.—Erection of 11 pairs of houses in Ifield-road, Crawley, for the R.D.C. Mr. W. R. Guilford, Surveyor to the Council, Albion-terrace, Horsham. Deposit £1 1s.

MAY 7.—**Wolsingham.**—HOUSES.—Erection of three pairs of semi-detached cottages at Holywood Hall Sanatorium, Wolsingham, for the Durham C.C. Mr. Albert E. Brookes, County Surveyor, Shire Hall, Durham.

MAY 7.—**Wood Green.**—HOUSES.—Erection of 92 houses, for the U.D.C., on the White Hart-lane Estate. The Engineer and Surveyor to the Council, Town Hall, Wood Green. Deposit, £3 3s.

MAY 9.—**Chesterfield.**—HOUSES.—Erection of 40 houses, for the T.C. Mr. W. M. Ashmore, architect, Highfield-road, Chesterfield.

MAY 9.—**Eccles.**—CONVERSION.—Conversion of the Patricroft Day Nursery, Green-lane, Patricroft, into a Maternity and Child-Welfare Centre, for the T.C. Borough Surveyor, Town Hall, Eccles.

MAY 9.—**Glamorganshire.**—VARIOUS WORKS.—(1) Three Crosses Council School: New casement windows for Mixed Department; (2) Alltwen Mixed Council School: making up Approach-road; (3) Penclawdd Mixed Council School: Sundry repairs; (4) Gwauncaegurwen Council School: Sundry repairs; (5) Resolven Council School: re-arrangement of offices; (6) Maendy (near Cowbridge) Council School: re-building chimney stack; (7) Eastern Division: painting (externally) the following schools:—Penybont Infants, Saint Athan Cwmaber Boys, Cwmaber Girls and Infants (including temporary building), Coedybrain Infants, Bedlinog Infants, Gelligaer Village Mixed, Pontlottyn Boys and Girls, Pontlottyn Infants, Fochriw Infants, Nantymoel Boys and Girls, Tynewydd Girls and Infants, Ffaldan Boys, Radyr, Tonyrefail Boys, and Tonyrefail Infants. Mr. T. Mansel Franklen, Secretary, E.C., Glamorgan County Hall, Cardiff.

MAY 9.—**Little Hulton.**—HOUSES.—Erection of 22 houses, for the U.D.C. Surveyor, Council Offices, Little Hulton. Deposit, £2 2s.

MAY 9.—**London, E.**—PAINTING AND REPAIRING.—Painting and repairing of the exteriors of six schools during the Whitsuntide vacation. The contractors will be required to employ only men resident in West Ham beyond their usual staff. Mr. John H. Jacques, Architect to the Committee, 2, Fen-court, Fenchurch-street, E.C.3. Deposit, £1.

MAY 9.—**Newcastle-on-Tyne.**—VARIOUS WORKS.—Repairs to buildings, tar macadam paths, painting, &c., at the Cottage Homes, Ponteland; electric lighting, stores, Wingrove Hospital; water supply, Cottage Homes, Ponteland; laying about 544 yds. of 3 in. cas iron water pipe, for the Board of Guardians. Clerk, 127, Pilgrim Street, Newcastle-upon-Tyne.

MAY 10.—**Birmingham.**—ALTERATIONS.—Alterations to the Ministry of Pensions Regional Headquarters, 55 Lionel-street. Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W. 1. Deposit £1 1s.

MAY 10.—**Grimsby.**—PAINTING.—Painting and cleaning the interior of the Weelsby-street, Strand-street, and St. John's Schools, for the T.C. Education Offices, Grimsby.

MAY 10.—**Maesteg.**—HOUSES.—Erection and completion of 100 houses (three contracts) for the U.D.C. Mr. S. J. Harpur, M.S.A., Council Offices, Talbot-street, Maesteg. Deposit £2 2s. for each contract.

MAY 10.—**Reading.**—POST OFFICE.—Erection of a new Post Office at Reading. Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W.1. Deposit, £1 1s.

✱MAY 10.—**Scarborough.**—HALL.—Erection of Wesleyan Central Hall, Queen-street, Scarborough. Mr. George E. Withers, architect, 50, Cannon-street, London, E.C.4. Deposit £3 3s.

MAY 10.—**Wandsworth, S.W.**—HOUSES.—Erection of 109 houses for the Borough Council. (*a*) 71 houses on the Watney Estate, Southfields; (*b*) 38 houses on the Furzedown Estate, Tooting; Mr. G. L. Elkington, architect, Norfolk House, 7, Laurence Pountney-hill, Cannon-street, E.C.4.

MAY 10.—**Wombwell.**—EXTENSION.—Extension of urinal at John-street Council School, for the West Riding E.C. West Riding Education Architect, County Hall, Wakefield.

MAY 11.—**Crediton.**—PAINTING, &C.—For repairing painting and re-lettering sign-posts, for the R.D.C. Mr. F. Horbury, surveyor, "Newlyn," Fordton, Crediton.

MAY 11.—**Hull.**—PAINTING.—For painting at the parks, cemeteries, &c., for the T.C. Mr. F. W. Bricknell, City Engineer, Guildhall, Hull.

MAY 11.—**Ipswich.**—SORTING OFFICE.—Erection of a sorting office, for H.M. Commissioners of Works. Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W. 1. Deposit, £1 1s.

MAY 11.—**Lanarkshire.**—HOUSES.—Various trades in erection at Millerston (76 houses) and the Stepps Scheme (30 houses), for the District Committee of the County of Lanark. Mr. Jas. A. M'Callum, District Clerk, 15, West George Street, Glasgow. Deposit £1 1s.

MAY 11.—**Northwich.**—HOUSES.—Erection of 54 houses, for the R.D.C. Mr. J. Birtwistle, Housing Surveyor, Berk Chambers, Northwich.

MAY 11.—**Nottingham.**—SCHOOL.—Erection of (*a*) the New Portland Council Schools, Forest Fields, (*b*) Council School, Wells-road, for the T.C. City Architect's Office, Guildhall. Deposit, £1 each contract.

MAY 11.—**Oldbury.**—PAINTING.—For painting and decorating Abbey-road Schools and the exterior of the caretaker's house, for the U.D.C. Mr. Roland Fletcher, surveyor, Public Buildings, Oldbury.

MAY 11.—**Plymouth.**—VARIOUS WORKS.—Works, repairs and materials required at Bull Point and North-Eastern Defences in Devonport and Plymouth Districts, for the War Office. Commanding Royal Engineers, South-Western Area, R.E. Office, South Raglan Barracks, Devonport.

MAY 11.—**Salford.**—DECORATIONS.—For decoration of the main corridor and staircases at the Salford Town Hall. Mr. Wm. W. Davidson, 1, Plymouth-grove, West, Manchester.

MAY 11.—**Skipton.**—HOUSES.—Erection of eight parlour houses and ten scullery houses, for the U.D.C. Mr. Aldridge, Surveyor, Town Hall, Skipton. Deposit £1 1s.

MAY 12.—**Cambridge.**—HOUSES.—Erection of 100 houses, with roads and sewers, at March. Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W. 1. Deposit £1 1s.

MAY 12.—**Glasgow.**—CONVENIENCE.—Construction of a public convenience at Eldon-street, Kelvingrove-park, for the T.C.: (1) Mason, brick, joiner, &c., works; and (2) sanitary fittings. Office of Public Works, City-chambers, 64, Cochrane-street, Glasgow.

MAY 12.—**Mansfield.**—HOUSES.—Erection of 300 houses of various types or such proportion of that number as can be completed before July, 1922, at Bull Farm site, Chesterfield-road, for the Borough Council. Mr. W. Thompson, Borough Engineer and Surveyor, Market-street, Mansfield. Deposit £2.

MAY 12.—**Strood.**—PAINTING, &C.—For painting, distempering and certain repairs at the Isolation Hospital, Whitehill-road, near Gravesend, for the Strood R.D.C. Mr. L. Randerson, surveyor, Meopham, near Gravesend.

MAY 13.—**Brazil.**—SLAUGHTERHOUSE.—The Brazilian Consul-General is calling for tenders for the building of a model slaughterhouse, &c., in Rio de Janeiro. The Brazilian Consulate, South-place, London, E.C.2.

MAY 14.—**Dunnington.**—EXTENSION.—For extension of Dunnington Reading Room, laying of new floor, &c. Mr. R. J. Richardson, York-street, Dunnington.

MAY 14.—**Durham.**—HOUSES.—Erection of 52 houses at Bearpark, for the R.D.C. Mr. George Ord, architect, 16, The Avenue, Durham. Deposit, £2 2s.

MAY 14.—**King's Bromley.**—ADDITIONS.—Erection of classrooms, boiler-house, &c., at Parochial Schools. Mr. W. E. Rogers, architect, Rugeley.

MAY 14.—**Morley.**—ALTERATIONS.—Alterations to the Fire Station, for the T.C. Mr. F. Turner, Borough Engineer, Town Hall, Morley.

MAY 14.—**Ruskington.**—HOUSES.—Erection of eight houses, for the U.D.C. Mr. F. Hossack, architect, Ruskington. Deposit, £2.

MAY 14.—**Shoreham.**—REPAIRS TO PIER.—Repairs to the West Pier, for the Harbour Trustees. Mr. A. J. Catt, Harbour Master, Shoreham. Deposit, £1.

MAY 15.—**Shrewsbury.**—REPAIRS AND MATERIALS.—Tenders required for a triennial contract from June 1st, 1921. The Commanding Royal Engineer, R. E. District, 3, Belmont, Shrewsbury.

MAY 16.—**Leake.**—HOUSES.—Erection of eight workmen's dwellings, on the Kirk Leys site, East Leake, for the R.D.C. Mr. A. W. Jarratt, Clerk, Union Offices, Loughborough. Deposit, £2 2s.

MAY 16.—**Ryde.**—PAINTING.—Exterior painting of the Royal Isle of Wight County Hospital, Ryde. A. S. Gordon, Secretary, Hospital, Ryde.

MAY 16.—**Sidmouth.**—HOUSES.—Erection of 56 houses, for the U.D.C. Mr. R. W. Sampson, architect, Manor Offices, Sidmouth.

MAY 17.—**New Mills.**—HOUSES.—Erection of two pairs of parlour-type houses, for the U.D.C. Mr. Wm. Swann, architect, St. Peter's Chambers, Stockport. Deposit £1 1s.

MAY 18.—**Altrincham.**—HOUSES.—Erection of 44 dwelling-houses, for the U.D.C. Mr. H. E. Brown, Surveyor, Town Hall, Altrincham. Deposit, £2 2s.

MAY 18.—**Caterham.**—HOUSES.—Erection of six houses, for the U.D.C. Surveyor, Council Offices, Caterham Valley. Deposit, £1 1s.

MAY 18.—**Wharfedale.**—HOUSES.—Erection of a small number of dwellings at Menston, for the R.D.C. Mr. Oswald Holmes, architect, Boroughgate, Otley.

✱MAY 19.—**London, S.E.1.**—PAINTING & CLEANING.—Painting, cleaning and minor repairs at the Southwark Hospital, East Dulwich Grove, S.E., for the Guardians of the Southwark Union. Guardian's Architect, Mr. A. Saxon Snell, 9, Bentinck-street, Manchester-square, W. 1. Deposit, £2.

MAY 19.—**Whitley Bay.**—POST OFFICE.—Erection of a new Post Office, for the Commissioners of H.M. Works. The Secretary, Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W. 1. Deposit £1 1s.

MAY 20.—**Chester.**—ALTERATIONS.—Alterations to the Head P.O., for the Commissioners of H.M. Works. Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W. 1. Deposit, £1 1s.

MAY 20.—**Clayton West.**—ADAPTATION.—Adaptation of Infants' Department as a special subjects centre, at Clayton West Kaye's Council School, for the West Riding E.C. West Riding Education Architect, County Hall, Wakefield.

MAY 20.—**Doncaster.**—HOUSE.—Erection of house at Poplar Farm, Campsall, near Doncaster. Messrs. Lunn & Kaye, architects, Milnsbridge, Huddersfield.

✱MAY 20.—**Hebburn-on-Tyne.**—PLUMBING.—For plumber's work in connection with housing scheme, for the Commissioners of H.M. Works. Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W. 1.

MAY 20.—**Leeds.**—HOUSES.—Erection of 1,000 houses on the Middleton Housing Estate, for the T.C. Mr. W. T. Lancashire, City Engineer, Leeds. Deposit £1 1s.

✱MAY 21.—**Letchworth, Herts.**—HOUSE REFUSE PULVERISER.—Erection of Buildings, &c., for house refuse pulveriser, including high and low level concrete floors and approach roads, and close boarded fencing of site. Mr. G. T. Hill, Surveyor to the Council, Council Offices, Broadway Chambers, Letchworth. Deposit £2 2s.

MAY 21.—**Rothwell.**—HOUSES.—Erection of houses on the following sites: Rothwell Haigh 96, Lofthouse 48, Carlton 48, Thorpe 48, for the U.D.C. Messrs. Jones & Stocks, architects, 56, Prudential Buildings, Park-row, Leeds.

MAY 21.—**Salcombe.**—HOUSES.—Erection of 20 houses, for the U.D.C. Mr. J. G. Howard, Surveyor, Salcombe.

MAY 22.—**Crayford.**—HOUSES.—Erection of 154 houses, for the U.D.C., to be let in three contracts:—No. 1, 48; No. 2, 50, and No. 3, 56 houses. Mr. Walter F. Bickford, Engineer and Surveyor, Public Offices, Crayford, Kent. Deposit, £3 3s. for each contract.

MAY 23.—**Chesterfield.**—HOUSES.—Erection of 31 houses, for the T.C. Mr. Bailey Deeping, architect, Gluman Gate, Chesterfield.

MAY 24.—**Hazel Grove and Bramhall.**—HOUSES.—Erection of 12 houses, for the U.D.C. Messrs. Adshead & Topham, architects, 23, King-street, Manchester. Deposit, £1 1s.

✱MAY 24.—**Winchester.**—ALTERATIONS.—Alterations to Winchester Post Office. Contracts Branch H.M. Office of Works, King Charles-street, London, S.W. 1. Deposit £1 1s.

MAY 25.—**West Kensington.**—EXTENSION.—Extension of the P.O. Savings Bank, for the Commissioners of H.M. Works. Contracts Branch, H.M. Office of Works, King Charles-street, S.W. 1. Deposit, £1 1s.

✱MAY 26.—**Southampton.**—HOUSES.—Erection of 210 houses at Southampton, for the Commissioners, H.M. Office of Works, King Charles-street, London, S.W. 1. Deposit £1 1s.

MAY 28.—**Barnstaple.**—EMERGENCY EXIT.—Construction of an emergency exit at Theatre Royal, for the Bridge Trustees. Mr. H. Ashton, Clerk, Bridge Trustees, The Strand, Barnstaple.

JUNE 30.—**Pulborough.**—COTTAGES.—Erection of 30 cottages in various parishes, for the R.D.C. Mr Percy Ayling, Clerk to the Council, Council Offices, Storrington, Pulborough.

NO DATE.—**Barnsley.**—ALTERATIONS.—Alteration of existing buildings into manual instruction rooms at the Central Schools, Barnsley, for the Barnsley Education Committee. Messrs. Dyson, Cawthorne & Coles, architects, 10, Regent-street, Barnsley.

NO DATE.—**Barnsley.**—PATTERN STORE.—Erection of a pattern store at the Borough Foundry, Barnsley, for Messrs. Needham Bros. & Brown. Messrs. Dyson, Cawthorne & Coles, architects, 10, Regent-street, Barnsley.

NO DATE.—**Cowdenbeath.**—CHURCH.—For concrete block walling, joiner, plumber, plaster, and roof tiling work. Mr. R. Fairlie, architect, 14, Randolph-place, Edinburgh.

NO DATE.—**Horsforth.**—PAINTING.—For the painting of two bridges at Newlay. Mr. H. Shipley, Engineer and Surveyor, Council Offices, Horsforth.

NO DATE.—**Leeds.**—PAINTING.—For painting, &c., exteriors of nine houses and villa. Messrs. Wm. Fox & Co., Ltd., Standard Works, Lower Wortley, Leeds.

NO DATE.—**South Uist.**—ALTERATIONS.—Additions and alterations at doctor's house, Daliburgh, South Uist, for the Parish Council. Mr. R. M. Macmillan, Clerk, Gerinish, South Uist.

NO DATE.—**Smallthorne.**—HOUSES.—Erection of 18 houses, for the U.D.C. Mr. W. A. Baynes, architect, Pall Mall, Hanley.

✱NO DATE.—**Stroud.**—HOUSES (CONCRETE).—Erection of 22 houses on the Calway Concrete System, for the R.D.C., in Dudbridge-lane, Rodborough. Messrs. Falconer, Baker & Campbell, Amberley. Deposit £2 2s.

FURNITURE, MATERIALS, etc.

MAY 9.—**Herne Bay.**—MATERIALS.—Supply of various materials to the U.D.C. Mr. F. W. J. Palmer, Surveyor, Town Hall, Herne Bay.

MAY 10.—**Glasgow.**—MATERIALS, &C.—For materials and jobbing works, for the Parks Dept. Mr. J. Whitton, Director of Parks, City Chambers, 249, George-street, Glasgow.

MAY 10.—**Richmond.**—MATERIALS.—Supply of stores to Richmond Main Sewerage Board. Mr. William Fairley, Engineer to the Board, West Hall-road, Kew Gardens, Surrey.

MAY 13.—**London.**—CEMENT.—Supply of Portland cement to the Egyptian War Dept. Office of Inspecting Engineer to the Egyptian Government, Queen Anne's Chambers, Westminster, S.W.

MAY 14.—**Blean.**—ROAD MATERIALS, &c.—Supply of road materials, team labour and steam rolling, for the R.D.C. Mr. F. A. Ward, surveyor, Eddington, Herne Bay.

✱MAY 14.—**Bristol.**—STORES AND BUILDING MATERIALS.—Supply (during six months ending December 31, 1921) of stores and building materials for the Sanitary and Improvements Committee. City Engineer, 63, Queen-square, Bristol. Payment 10s.

MAY 15.—**Kilmarnock.**—MATERIALS.—For supply of various stores to the Treasurer's Dept. Mr. J. H. Menzies, engineer, The Cross, Kilmarnock.

ENGINEERING, IRON AND STEEL.

MAY 7.—**Waterford.**—VARIOUS.—Supply of motor, sweeping machine, sprinklers, rock drill parts, &c. to the T.C. Borough Surveyor, 12, The Mall, Waterford.

MAY 10.—**London.**—STORES.—Supply of mild steel bars, Sheffield tools, &c., to the Great Indian Peninsula Railway Co. Mr. R. H. Walpole, Secretary, 48, Copthall-avenue, E.C. 2. Fees £1 and 10s.

MAY 10.—**Manchester.**—COLUMNS.—Supply to the T.C. of weldless steel lamp columns. Mr. Fredk. E. Hughes, Secretary, Electricity Department, Town Hall, Manchester.

MAY 10.—**Manchester.**—TRAILER.—Supply of one 3-ton trailer wagon, rubber-tyred, for the Tramways Dept. Mr. J. M. McElroy, general manager, Corporation Tramways, 55, Piccadilly, Manchester.

MAY 10.—**Manchester.**—TROLLEY WIRE.—Supply of electrolytic copper and bronze trolley wire. Mr. J. M. McElroy, General Manager, Manchester Corporation Tramways, 55, Piccadilly, Manchester.

MAY 11.—**London.**—MATERIAL.—Supply to the South Indian Railway Company of (1) mild steel plates; (2) mild steel sheets; (3) spring steel; (4) wrought iron bars. Company's Offices, 91, Petty France, Westminster, S.W.1.

MAY 12.—**Leeds.**—ENGINEERING LABOUR.—Supply of mechanical engineering labour in day work in connection with the maintenance of heating installations &c., in Leeds and vicinity, for H.M. Commissioners of Works. Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W. 1.

MAY 18.—**London.**—MATERIALS.—Supply to the East Indian Railway Company of (1) axles for carriages and waggons; (2) axleboxes for carriages and waggons; (3) helical and volute springs; (4) laminated springs and back plates. Mr. G. E. Lillie, Secretary, Nicholas-lane, London, E.C.4. Charge £1 1s.

MAY 20.—**Birmingham.**—HEATING INSTALLATION.—For low-pressure heating (by radiators) and hot-water services for a portion of the Dudley-road Hospital, for the Board of Guardians. Mr. James Curtis, Clerk, Union Offices, Edmund-street, Birmingham.

MAY 21.—**Sowerby Bridge.**—DECKING.—For reinforced concrete decking required for reconstruction of bridge over River Calder. Mr. J. Eastwood, Surveyor, Council Offices, Sowerby Bridge.

MAY 31.—**Bombay.**—WATER WORKS.—Construction of about 105 miles of steel and reinforced concrete pipe lines (from 72 in. to 57 in. diameter), and contingent works, for the Corporation. Messrs. Taylor & Sons, consulting engineers, 36, Victoria-street, Westminster, London, S.W. Deposit, £2 each specification (8).

JUNE 8.—**Clapton.**—PUMPING MACHINERY.—Supply and erection of pumping machinery at Lea Bridge, Clapton, N.E., for the Metropolitan Water Board. Chief Engineer's Department, 173, Rosebery-avenue, Clerkenwell, E.C. 1. Deposit, £3 3s.

JUNE 15.—**Walton-on-Thames.**—PUMPING MACHINERY.—Supply and erection of pumping machinery near Walton-on-Thames, Surrey, for the Metropolitan Water Board. Mr. Henry E. Stilgoe, Chief Engineer, Offices, Rosebery-avenue, E.C. Deposit, £5.

JUNE 20.—**China.**—BRIDGE.—The Peking-Hankow Line (Chinese Government Railways) invites sealed proposals for designing and building a new steel bridge, about 2,000 metres in length, across the Yellow River (Hoangho). Plans, &c., by telegraph from the following offices: Peking-Hankow Railway, Peking, China; Chinese Legation, London; British Legation, Peking, China. Deposit, £6.

JULY 26.—**Bombay.**—WATER WORKS.—The invitation for tenders for the construction of 105 miles of steel and reinforced concrete pipe lines in connection with the water scheme for the Corporation, has been extended to July 26. Messrs. J. Taylor & Son, 36, Victoria-street. Deposit, £2.

NO DATE.—**Dundee.**—ELECTRIC FITTINGS.—For supply of electric fittings to the City Hall. Mr. J. Thomson, City Architect, Dundee.

NO DATE.—**Hanwell.**—DUST VANS.—Supply of two new or second-hand screw-tipping dust vans, to the U.D.C. Surveyor, Council Offices, Hanwell, W.7.

NO DATE.—**Manchester.**—PIPING.—For 18 in., 15 in., and 12 in. bore, new or second-hand piping, for the Metropolitan Vickers Co., Trafford Park, Manchester.

NO DATE.—**Tynemouth.**—ELECTRIC BELLS.—Installation of an electric alarm bell system to the Fire Station and five dwelling-houses in Norfolk-street, North Shields, for the T.C. Mr. Tom Blackburn, Chief Constable's Office, North Shields.

ROAD, SANITARY, AND WATER WORKS.

MAY 7.—**Pontefract.**—ROADS, &C.—Roadworks and sewerage in connection with housing schemes at Airedale, for the R.D.C. Mr. Geo. W. Hobman, Clerk, 29, Ropergate, Pontefract. Deposit, £2.

MAY 7.—**Tadcaster.**—ROADS AND SEWERS.—Construction of roads and sewers on housing schemes, Western Division, for the R.D.C. Messrs. Jones & Scocks, architects, 56, Prudential-buildings, Leeds.

MAY 9.—**Loughborough.**—SEWER.—Construction of sewer, &c., for housing site, for the T.C. Mr. A. H. Walker, Borough Engineer, Loughborough. Deposit, £2 2s.

MAY 9.—**Manchester.**—RAW MATERIALS.—Supply to the Highways Committee of tarred granite or tarred slag, paving, &c., Department, Town Hall, Manchester.

MAY 9.—**Monifieth.**—ROADS.—Extension of Durham-street, and widening of Grange-road, Monifieth, for the T.C. Mr. C. A. Mackenzie, Burgh Surveyor, Monifieth.

MAY 9.—**Selby.**—SEWERS, &C.—Making of sewers on land at Flaxley-road, for the U.D.C. Mr. Bruce Gray, Engineer, New-lane, Selby.

MAY 10.—**Southall-Norwood.**—STREET WORKS.—For making up Trinity-road (part of) and Mount-avenue (part of), for the U.D.C. Mr. J. B. Thomson, Surveyor, Town Hall, Southall.

MAY 10.—**Stoke-on-Trent.**—SANITARY.—Conversion into water closets of 100 privy cesspools, for the T.C. Health Dept., Glebe-street, Stoke.

MAY 12.—**Southwell.**—SEWER.—Laying of about 1,250 yards of 6 in. stoneware pipe sewer at Southwell, for the R.D.C. Messrs. Sands & Walker, Milton Chambers, Milton-street, Nottingham.

MAY 14.—**Glasgow.**—SEWER.—Construction of a 3 ft. brick sewer in Crossloan-road and Craigton-road, for the T.C. Office of Public Works, 64, Cochrane-street, Glasgow.

MAY 14.—**Radcliffe.**—SEWERAGE WORKS.—Extension of sewerage systems of the U.D.C. Mr. W. L. Rothwell, engineer, District Council, Council Offices, Radcliffe. Deposit, £2 2s.

MAY 14.—**Rotherham.**—SEWERAGE WORKS.—Construction of detritus and septic tanks, sludge lagoons, &c., and the construction of about 300 yards 9-in diameter stoneware pipe sewer, at Brampton Bierlow for the R.D.C. Mr. C. O. Rawstron, engineer, Imperial Buildings, Rotherham. Deposit, £2 2s.

MAY 16.—**Southend-on-Sea.**—ROADS.—Renewal of foundations and surfacing of Marine Parade, Leigh, for the T.C. Mr. R. H. Dyer, Borough Engineer, Southend-on-Sea. Deposit £2.

MAY 16.—**West Ham.**—REFUSE DISPOSAL.—Removal and disposal of house refuse, by barging, for the B.C. Office of the Medical Officer of Health, Town Hall, West Ham, E. 15. Deposit, £1.

MAY 21.—**Wombwell.**—SEWERAGE WORKS.—Scheme of sewage disposal at the new Scarborough Sewage Disposal Works at Wombwell, for the U.D.C. Messrs. D. Balfour & Son, Civil Engineers, 3, St Nicholas Buildings, Newcastle-on-Tyne. Deposit £5

✱MAY 23.—**London, S.W.**—PAVING.—Repaving with wood of carriageway of Waterloo Bridge, for the L.C.C. Chief Engineer, County Hall, Spring Gardens, S.W. Deposit £3.

✱MAY 23.—**London, W.**—SEWER WORK.—Execution of jobbing sewer work for the period from June 1, 1921, to March 31, 1922, for the Royal Borough Council. Town Clerk, Town Hall, Kensington, W. 8.

NO DATE.—**Chichester.**—ROADS.—For the sewerage and drainage works in connection with the housing scheme of the T.C. Mr. Frank J. Lobley, City Engineer, 7, Lion-street, Chichester.

Auction Sales, Tenders, etc.

MAY 10.—**Helmsley.**—Messrs. Sottwaltz & Perry have received instructions from Messrs. Hill, Richards & Co., Ltd., to sell, at the Saw Mills, Helmsley, Yorks, unreserved sale of plant, machinery, huts and stores. Auctioneers, Cardiff. Catalogues of Messrs. Hill, Richards & Co., Ltd., 16, Albemarle-street, London.

✱MAY 10.—**London, S.W.**—Mr. Frank G. Bowen will sell by order of the Sheriff, 3, Vauxhall Bridge-road, S.W., plant and stock of a builder and joinery contractor, stock of timber, &c. Auctioneer, 62A, Aldersgate street and Hare-court, London, E.C.1.

✱MAY 10, 11 & 12.—**Sussex.**—Messrs. Robson & Perrin will sell at the Shoreham Shipyard, machinery, loose plant, equipment and ship's fittings. Auctioneers, 40-42, King William-street, London, E.C. 4.

MAY 11.—**Patrington, Yorkshire.**—Messrs. Elwell & Lown will sell, by direction of the Disposal Board, at Patrington Camp, Patrington, East Yorkshire, sectional wood huts and camp equipment. Auctioneers, 24A, Brook-street, Hull.

MAY 11 AND 12.—**Lincolnshire.**—Messrs. Joseph E. Walter will sell, by direction of the Disposal Board, at Scampton Aerodrome, huts, machinery, fixtures, fittings, &c. Auctioneers, 10, Banks-street, Horncastle, and Barclays Bank Chambers, Lincoln.

MAY 12.—**London, W.**—Messrs. Knight, Frank & Rutley will sell by auction in the Hanover-square Estate Room the freehold residential property, "Marshal's Wick," St. Albans, standing in the centre of timbered park. The whole extending to about 178 acres. Auctioneers, 20, Hanover-square, W. 1.

✱MAY 18.—**London, E.C.**—Messrs. Baxter, Payne & Lepper will sell by auction, by order of the Trustees, Kent, Grove Park, Lot 1, freehold building land having a frontage of 240 ft. to Chinbrook-road. Lot 2, freehold meadow land having a frontage of 387 ft. to Chinbrook-road; area about 43a. 1r. 27p. At the London Auction Mart, 155, Queen Victoria-street, E.C. Auctioneers, Bromley, Kent.

✱MAY 18.—**Slough.**—Messrs. Debenham, Tewson & Chinnocks will sell *re* the Standard Building Construction Co., Ltd. (in voluntary liquidation), Wrexham-road, Slough, machinery and stock of the company. Auctioneers, 80, Cheapside, E.C.2.

✱MAY 19.—**Enfield, N.**—Mr. Ernest Owers will sell *re* Messrs. Fitch & Sons (in bankruptcy), by direction of trustees (F. S. Salaman, Esq., and R. C. Fletcher, Esq.), at 308, Baker-street, Enfield, building machinery and stock. Auctioneers, 200, Finchley-road, N.W.3.

✱JUNE 9.—**Shooters Hill.**—Messrs. Knight, Frank & Rutley will sell in the Hanover Estate Room, freehold building land extending to about 52¾ acres on the Shrewsbury Estate. Auctioneers, 20, Hanover-square, London, W. 1.

Competitions.

(See Competition News, page 578)

Public Appointments.

✱MAY 7.—**West Bromwich.**—ASSISTANT.—Assistant to the Clerk of Works required by the Corporation. Mr. Alfred Wickham, Town Clerk, Town Hall, West Bromwich.

✱MAY 9.—**Chelmsford.**—Heating Engineer required in the office of the County Architect Mr. JNO. Stuart, F.R.I.B.A., County Architect, County Offices, Old Court, Springfield, Chelmsford.

✱NO DATE.—**Liverpool.**—The Liverpool Exchange Company require the services of an Architect, on retirement after 28 years' service of Mr. James Dod, on June 30, 1921. The Secretary, the Liverpool Exchange Co., Liverpool.

NEW COMPANIES.

THE particulars quoted below have been compiled by Messrs. Jordan & Sons, Ltd. Company Registration Agents, of 116 & 117, Chancery-lane, W.C.2, from the documents available at the Companies' Registry.

CATLOW, LLOYD & CO., LTD. (173,454). Registered March 2. Painters, paperhangers, grainers, and decorators. Nominal capital, £4,000.

SPALDING CONTRACTING CO., LTD. (173,448). Registered March 1. 4, Broad-street, Spalding, Lincs. Builders and engineers. Nominal capital, £500.

THOMAS BREVETOR, LTD. (173,538). Registered March 5. 17/19, Turner-square, Hoxton, N. Builders, decorators and contractors. Nominal capital, £2,500.

CIRENCESTER AND COTSWOLDS BUILDING CO., LTD. (173,543). 5A, Querns-lane, Cirencester. Nominal capital, £2,000.

BUILDING REPAIRS (MANCHESTER), LTD. (173,613). Registered March 10. 20A, Temple-street, Chorlton-on-Medlock, Manchester. Nominal capital, £2,500.

WAIGHT, REYNOLDS & CO., LTD. (173,607). Registered March 9. West-end, Pewsey, Wilts. Building contractors, decorators and painters. Nominal capital, £2,000.

E. A. VINCENT, LTD. (173,638). Registered March 11. 139, High-street, Ventnor, Isle of Wight. Builders, contractors, quarry owners, &c. Nominal capital, £10,000.

COLES BROS., LTD. (173,664). Registered March 12. Peasedown, St. John, near Bath, Somerset. Builders and contractors. Nominal capital, £15,000.

W. A. WHEELER & CO. (WANTAGE), LTD. (173,678). Registered March 12. Builders and contractors. Nominal capital, £5,000.

NORTH WALES GRANITE CO., LTD. (173,653). Registered March 11. Nominal capital, £30,000.

PANTEG COLLIERIES AND BLAENDARE BRICKWORKS CO., LTD. (173,416). Registered February 28, 1921. Nominal capital, £100,000.

STONE COURT BRICK AND TILE WORKS, LTD. (173,583). Registered March 8. Lower-green, Pembury. Nominal capital, £1,000.

TRAMOLITE, LTD. (173,397.) Registered February 26. Cromwell House, High Holborn, W.C. Flooring and paving manufacturers. Nominal capital, £1,000.

WOLSINGHAM PARK QUARRIES, LTD. (173,469). Registered March 2. 267/271, Stretford-road, Manchester. Nominal capital, £7,000.

GLASCOED BRICK AND TILE CO., LTD. (173,743). 22, Water-street, Liverpool. Registered March 17. Manufacturers of bricks and tiles. Nominal capital, £10,000.

A. G. KNIGHT & SONS (PURLEY), LTD. (173,921). Registered March 29. Builders and contractors. Nominal capital, £5,000.

COX & GODSHAW, LTD. (173,791). Registered March 19. 12, Sussex-place, South Kensington, S.W. Woodworkers, builders, painters, &c. Nominal capital, £1,000.

PRICES CURRENT OF MATERIALS.*

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry.—Ed.]

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge.

	£ s. d.
Best Stocks	5 1 6

Per 1000, Delivered at London Goods Stations.

	£ s. d.		£ s. d.
Flettons	3 17 0	Best Blue Pressed Staffordshire	12 4 0
Best Stourbridge Fire bricks	12 14 0	Do. Bullnose	12 14 0
GLAZED BRICKS—		Blue Wire Cuts	10 6 6
Best White, Ivory, and Salt Glazed Stretchers	29 10 0	D'ble Str'tch'rs	38 0 0
		D'ble Headers	35 0 0
		One Side and two Ends	39 0 0
Headers	29 0 0	Two Sides and one End	40 0 0
Quoins, Bullnose and 4½in. Flats	36 0 0	Splays and Squints	37 10 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours, Hard Glaze, £5 10s. extra over white.

	s. d.	
Thames Ballast	17 6	per yard,
Pit Sand	22 9	" "
Thames Sand	22 6	" "
Best Washed Sand	22 6	" "
¾ in. Shingle for Ferro-Concrete	22 0	" "
½ in. " "	23 0	" "

delivered 2 miles radius Paddington.

Per ton, delivered in London area.

	£ s. d.		£ s. d.
Best Portland Cement	4 7 6	Ferrocrete per ton extra on above	4 13 0
Best Ground Blue Lias Lime	3 12 6	at rly. depot.	10 0

80/6 alongside at Vauxhall in 80-ton lots.

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks. The sacks are charged at 2s. 6d. each and credited at 2s. each if returned in good condition within three months.

Grey Stone Lime ..... 75s. 0d. per ton delivered.
Stourbridge Fireclay in s'eks 44s. 8d. per ton at rly. dpt.

STONE.

	s. d.
BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	3 2½
Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R., per ft. cube	3 5½
Do. do. delivered on road wagons at Nine Elms Depot	3 6½
PORTLAND STONE—	
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, L.& S.W.R., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 11½
Do. do. delivered on road wagons at above stations, per ft. cube	5 0½
White basebed, 3d. per ft. cube extra.	

NOTE.—½d. ft. cube extra for every foot over 20 ft *average*, and ½d. beyond 30 ft.

	s. d.
YORK STONE, BLUE—*Robin Hood Quality.* Delivered at any Goods Station London. Scappled random blocks ..... Per Ft. Cube	16 0
6 in. sawn two sides landings to sizes (under 30 ft. super.) ..... Per Ft. Super	10 0
6 in. rubbed two sides, ditto ..... "	11 2
3 in. sawn two sides slabs (random sizes) "	4 4
2 in. to 2½ in. sawn one side slabs (random sizes) ..... "	2 8
1½ in. to 2 in. ditto, ditto ..... "	2 3
HARD YORK— Delivered at any Goods Station London. Scappled random blocks ..... Per Ft. Cube	10 3
6 in. sawn two sides landing to sizes (under 40ft. super.) ..... Per Ft. Super	9 6
6 in. rubbed two sides ditto ..... "	11 6
4 in. sawn two sides slabs (random sizes) "	5 6
3 in. ditto, ditto "	4 6
2 in. self-faced random flags .. Per Yard Super	13 6

WOOD.

GOOD BUILDING DEAL.

Inches	£ s.	
4 × 11	65 0	per standard
4 × 9	60 0	"
4 × 8	50 0	"
4 × 7	48 0	"
3 × 8	40 0	"
3 × 7	38 0	"
2½ × 7	38 0	"
5 × 6	36 0	"
3 × 11	62 0	
2 × 11	62 0	"
3 × 9	58 0	"
2½ × 9	58 0	"
3 × 4½	38 0	"
3 × 4	34 0	"

PLANED BOARDS.

1 × 11	66 0	
1 × 9	59 0	"

PLAIN EDGE FLOORING.

Inches		
¾	35/-	per square
1	38/-	"
1¼	42/-	"
1½	52/-	"
1¾	62/-	"

TONGUED AND GROOVED FLOORING.

Inches		
1	42/6	per square
1¼	52/6	"
1½	62/6	"

WOOD (*Continued*).

MATCHINGS (BEST).

Inches		
¾	30/-	per square
1	36/-	"
1¼	43/-	"

BATTENS.

Inches	s. d.	
¾ × 2	4 6	per 100 ft.

SAWN LATHS.

Per bundle	0 4	9
Dry Wainscot Oak, per ft. super, as inch	0 3 6 to	0 4 0
¾ in. do. do.	0 3 0 ..	—
Dry Mahogany—Honduras, Tabasco, African, per ft. super, as inch	0 2 6 to	0 3 0
Cuba Mahogany	0 4 0 to	0 4 6
Teak (Rangoon, Moulmein or Java), per load	75 0 0 to	85 0 0
American Whitewood planks, per ft. cube	0 18 0 to	1 4 0
Best Scotch Glue, per cwt.	10 0 0 ..	—
Liquid Glue, per cwt.	5 8 0 ..	6 15 0

SLATES.

1st quality slates from Bangor or Portmadoc in truck load delivered London area. Per 1,000 of 1,200.

		£ s. d.
Best Blue Bangor Slates,	24 by 12	56 10 0
" "	22 by 12	46 0 0
First quality " "	22 by 11	42 10 0
" "	20 by 12	42 0 0
Best Blue Portmadoc	20 by 10	36 10 0
" "	18 by 10	29 10 0
First quality "	18 by 9	24 5 0
" "	16 by 10	22 15 0
" "	16 by 8	18 0 0

TILES.

	Per 1,000 f.o.r. London. £ s. d.
Best machine-made tiles from Broseley or Staffordshire district	7 15 0
Ditto hand-made ditto	8 10 0
Ornamental ditto	7 7 6
Hip and valley tiles (per dozen)	0 15 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—

	£ s. d.
R. S. Joists, cut and fitted	28 0 0
Plain Compound Girders	30 0 0
" Stanchions	32 0 0
In Roof Work	36 0 0

WROUGHT-IRON TUBES AND FITTINGS—(Discount off List for lot of not less than £15 net value delivered direct from works. 5 per cent. less above gross discounts, carriage forward if sent from London stocks.)

	Tubes. ⅛" to 2".	2¼" to 6".	Fittings. ⅛" to 2".	2¼" to 6".
Gas	—10	—15 ..	—17½	—25
Water	Net	— 6½ ..	—12½	—22½
Steam	+11½	+ 3½ ..	— 7½	—20
Galv'd Gas	+10	+ 5 ..	—10	—17½
" Water	+22½	+16½ ..	— 5	—15
" Steam	+35	+27½ ..	Net	—12½

L.C.C. COATED SOIL PIPES—London Prices ex works.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches, stock angles. s. d.
2 in. per yd. in 6 fts.	6 4	4 6	5 5
2½ in. "	7 3½	4 11½	6 9
3 in. "	9 0½	5 5	8 1
3½ in. "	10 0	6 9	9 5½
4 in. "	10 11½	7 8	10 9½

RAIN-WATER PIPES, &c.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches, stock angles. s. d.
2 in. per yd. in 6fts. plain	5 6	3 2	4 0
2½ in. " "	6 0	3 6	4 10
3 in. " "	7 3	4 4	6 6
3½ in. " "	8 9	5 2	7 6
4 in. " "	9 9	6 3	9 3

L.C.C. DRAIN PIPES,—9 ft. lengths per yd.: 4 in., 13/-. .. 5 in., 16/6. .. 6 in., London Prices. 19/11.

IRON—	Per ton in London. £ s. d.	£ s. d.
Common Bars	27 10 0 to	28 10 0
Staffordshire Crown Bars good merchant quality	28 0 0 ..	29 0 0
Staffordshire "Marked Bars"	30 10 0 ..	32 10 0
Mild Steel Bars	24 0 0 ..	26 0 0
Steel Bars. Ferro-Concrete quality, basis price	24 0 0 ..	26 0 0
Hoop Iron, basis price	31 0 0 ..	33 0 0
" Galvanised	46 0 0 ..	48 0 0
Soft Steel Sheets, Black— Ordinary sizes to 20 g.	30 0 0 ..	32 0 0
" " " 24 g.	31 0 0 ..	33 0 0
" " " 26 g.	33 0 0 ..	34 0 0
Sheets Flat Best Soft Steel, C.R. & C.A. quality— Ordinary sizes, 6ft. by 2ft. to 3ft. to 20 g.	38 0 0 ..	39 0 0
Ordinary sizes, 6ft. by 2ft. to 3ft. to 22 g. and 24 g.	39 0 0 ..	41 0 0
Ordinary sizes, 6ft. by 2ft. to 3ft. to 26 g.	41 0 0 ..	43 0 0
Flat and Galvanised Corrugated Sheets— Ordinary sizes, 6 ft. to 9ft. 20 g.	29 0 0 ..	30 0 0

METALS (*Continued*).

	Per ton in London. £ s. d.	£ s. d.
Ordinary sizes, 6ft. to 9ft. 22 g. and 24 g.	30 0 0 ..	31 0 0
Ordinary sizes, 6ft. to 9ft. 26 g.	32 0 0 ..	34 0 0
Sheets Galvanised Flat, Best quality— Best Soft Steel Sheets, 6ft. by 2ft. to 3ft. to 20g. and thicker	38 0 0	39 0 0
Best Soft Steel Sheets, 22 g. and 24 g.	39 0 0	40 0 0
Best Soft Steel Sheets, 26 g.	40 0 0 ..	41 0 0
Cut Nails, 3in. to 6in. (under 3in. usual trade extras.)	33 0 0 ..	34 0 0

LEAD, &c.

Delivered in London.

	£ s. d.	
LEAD Sheet, English, 4 lb. and up	34 10 0 ..	—
Pipe in coils	35 0 0 ..	—
Soil Pipe	37 10 0 ..	—
Compo pipe	38 10 0 ..	—

NOTE—Country delivery, 30s. per ton extra; lots under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 2s. cwt. extra.

Old lead, ex London area, at Mills ..... per ton	17 0 0 ..	—
Do., ex country, carriage forward ..... per ton	18 0 0 ..	—

COPPER— Strong Sheet .... per lb.	0 2 3 ..	—
Thin " .... "	0 2 4 ..	—
Copper nails .... "	0 2 3 ..	—
Copper wire .... "	0 2 3 ..	—
TIN—English Ingots "	0 2 4 ..	—
SOLDER—Plumbers' "	0 1 10 ..	—
Tinmen's "	0 0 11 ..	—
Blowpipe "	0 1 2 ..	—
	0 1 4 ..	—

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES AND IN SQUARES IN ORDINARY SIZES.

	Per Ft.		Per Ft.
15 oz. fourths	4½d.	32 oz. fourths	10½d.
21 " thirds	5d.	" thirds	1/-
21 " fourths	6½d.	Fluted, Obscured and	
26 " thirds	7½d.	Enamelled Sheet,	
26 " fourths	8d.	15 oz.	7d.
" thirds	9½d.	21 "	9d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per Ft.
¼ Rolled plate	5½d.
⅜ Rough rolled	6½d.
½ Rough rolled	7½d.
Figured Rolled, Oxford Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish white	7½d.
Ditto, tinted	9½d.
Rolled Sheet	6½d.
White Rolled Cathedral	6½d.
Tinted do.	7½d.

Cast Plate is ½d. extra on the price of rough rolled.

PAINTS, &c.

		£ s. d.
Raw Linseed Oil	in pipes ..... per gallon	0 2 9
" " "	in barrels .... "	0 2 10
" " "	in drums .... "	0 2 11
Boiled " "	in barrels .... "	0 3 2
" " "	in drums .... "	0 3 4
Turpentine	in barrels ..... "	0 7 1
"	in drums (10 gall.) .. "	0 7 4
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)		58 10 0

GENUINE WHITE LEAD PAINT—"Father Thames," "Nine Elms," "Park," "Supremus" and other best brands (in 14 lb. tins) not less than 5 cwt. lots ..... per ton delivered 70 10 0

Red Lead, Dry (packages extra)	per ton	42 0 0
Best Linseed Oil Putty	per cwt.	0 19 0
Filocol	per cwt.	0 18 0
Size. X D Quality	fkn.	0 5 0

VARNISHES, &c.

	Per gallon. £ s. d.
Oak Varnish	Outside 0 15 0
Fine ditto	ditto 0 17 2
Fine Copal	ditto 1 1 6
Pale Copal	ditto 1 2 6
Pale Copal Carriage	ditto 1 4 6
Best ditto	ditto 1 14 6
Floor Varnish	ditto 0 19 0
Fine Pale Paper	Inside 0 18 0
Fine Copal Cabinet	ditto 1 2 6
Fine Copal flatting	ditto 1 0 6
Hard drying Oak	ditto 0 18 0
Fine Hard drying Oak	ditto 0 19 0
Fine Copal Varnish	ditto 1 0 6
Pale ditto	ditto 1 2 6
Best ditto	ditto 1 14 6
Best Japan Gold Size	0 12 6
Best Black Japan	0 18 0
Oak and Mahogany Stain (water)	0 17 6
Brunswick Black	0 11 9
Berlin Black	0 16 6
Knotting (patent)	1 16 0
French and Brush Polish	0 13 6
Liquid Dryers in Terebine	1 8 0
Cuirass Black Enamel	0 7 0

* The information given on this page has been specially compiled for THE BUILDER and is copyright. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

CURRENT PRICES FOR BUILDING WORK IN LONDON.*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	22	0
Add if in clay	" "	2	0
Add for every additional depth of 6 ft.	" "	1	6
Planking and strutting to trenches	per foot super	0	7½
Do. to sides of excavation, including shoring	" "	1	6

CONCRETOR.

		s.	d.
Portland cement concrete in foundation 1 to 6	per yard cube	55	0
Add if in underpinning in short lengths	" "	10	0
Add if in floors 6 in. thick	" "	4	0
Add if in beams	" "	5	0
Add if aggregate 1 : 2: 4	" "	15	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	" "	4	6

BRICKLAYER.

		£	s.	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	50	15	0
Add if in stocks	"	12	10	0
Add if in Staffordshire blues	"	34	10	0
Add if in Portland cement and sand	"	4	15	0

FACINGS.

		s.	d.
Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	0	1¼

POINTING.

Neat flat strucks or weathered joint	" "	0	0	3½

ARCHES.

Extra only to the price of ordinary brickwork :—

Fair external in half brick rings	" "	0	1	0
Axed in stocks	" "	0	2	0
Rubbed and gauged jointed in putty camber or segmental	" "	0	7	0

SUNDRIES.

		s.	d.
Damp course in double course of slates breaking joint and bedded in Portland cement	" "	0	1	8
Setting ordinary register grates and stoves	each	1	5	0
Setting kitchener, including forming flues, &c., with all necessary fire bricks	"	6	15	0

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard sup.	9	0
Three-quarter-inch vertical damp course	" "	14	3
One inch on flats in two thicknesses	" "	12	0
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	" "	1	6

MASON.

		s.	d.
York stone templates fixed	per foot cube	22	0
York stone sills fixed	" "	35	0
Bath stone and all labour fixed	" "	16	9
Portland stone fixed	" "	26	0

SLATER.

		s.	d.
Welsh 16 in. × 8 in. 3 in. lap, including nails	per square	98	0
Do. 20 in. × 10 in. Do. Do.	"	115	0
Do. 24 in. × 12 in. Do. Do.	"	117	6

CARPENTER AND JOINER.

		s.	d.
Fir framed in plates	per foot cube	9	0
Do. joists	" "	10	0
Do. roofs, floors and partitions	" "	11	3
Do. trusses	" "	13	6

		¾″	1″	1¼″	2″
Deal rough close boarding	per sq.	57/-	77/-	95/-	103/-

		s.	d.
Flat centering for concrete floor, including struts or hangers	"	68	0
Do. to beams	per ft. sup.	1	10
Centres for arches	"	2	4
Gutter boards and beams	"	1	9

FLOORING.

		¾″	1″	1¼″	1½″
Deal-edges shot	per sq.		78/-	99/-	114/-
Do. tongued and grooved	"		84/-	105/-	121/-
Do. matchings	"	70/-	85/-		
Moulded skirting, including backings and grounds	per ft. sup.	2/4	2/8	3/2	3/8

SASHES AND FRAMES.

		s.	d.
One-and-a-half moulded sashes or casements	per foot super	2	0
Two Do. Do. Do.	" "	2	6
Add for fitting and fixing	" "	0	6
Deal-cased frames with 1 in. inner and outer linings, 1¼ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares double hung, double hung with pulleys, lines and weights; average size	" "	5	6

DOORS.

		1½″	1¾″	2″
Two-panel square framed	per ft. sup.	2/8	2/11	3/1
Four-panel Do.	"	3/-	3/4	3/7
Two-panel moulded both sides	"	3/4	3/7	3/10
Four-panel Do. Do.	"	3/8	3/11	4/2

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated	per foot cube	22	0

		1″	1¼″	1½″
Plain deal jamb linings framed	per ft. sup.	2/2	2/4	2/7
Deal shelves and bearers	"	1/11	2/1	2/2
Add if cross tongued	"	2d.	2d.	2d.

STAIRCASES.

		1″	1¼″	1½″	2″	2½″
Deal treads and risers in and including rough brackets	"	3/4	4/-	4/8	—	—
Deal strings wrot in both sides and framed	"	4/6	4/9	—	—	—

		s.	d.
Housings for steps and risers	each	1	0
Deal balusters, 1 in. × 1¼ in.	per ft. run.	0	9
Mahogany handrail; average 3 in. × 3 in.	" "	6	3
Add if ramped	" "	12	6
Add if wreathed	" "	25	0

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	9d.	Rim locks	2/6
Sash fasteners	1/-	Mortice locks	5/6
Casement fasteners	1/6	Patent spring hinges and letting in to floor and making good	20/-
Casement stays	1/3		
Cupboard locks	1/6		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	32	0
Plain compound girders	"	36	0
Do. stanchions	"	39	0
In roof work	"	43	0

RAIN-WATER GOODS.

		3″	4″	5″	6″
Half-round plain rebated joints	ft. run	2/-	2/6	3/9	4/3
Ogee Do. Do.	"	2/6	3/3	4/-	5/-
Rain-water pipes with ears	"	2/11	3/9		
Extra for shoes and bends	each	4/7	6/3		
Do. stopped ends	"	2/-	2/6	3/9	4/3
Do. nozzles for inlets	"	2/3	2/9	4/-	4/6

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	61	0
Do. Do. in flats	"	56	0
Extra labour and solder in coated cesspools	each	7	9
Welt joint	per ft. run.	0	6
Soldered seam	" "	2	1
Copper nailing	" "	0	8

		½″	¾″	1″	1½″	2″	4″
Drawn lead waste	per ft. run	1/-	1/8	1/11	3/5	4/3	
Do. service	"	1/7	2/1	2/6	4/-		
Do. soil	"						6/10
Bends in lead pipe	each					3/7	9/-
Soldered stop ends	"	1/4	1/10	2/3	3/2	3/10	
Red lead joints	"	1/-	1/2	1/5	2/1	2/8	5/5
Wiped soldered joints	"	3/2	3/10	4/6	5/5	7/2	10/10
Lead traps and cleaning screws	"				16/2	21/7	
Bib cocks and joints	"	7/6	11/3	18/-	48/-		
Stop cocks and joints	"	18/-	20/-	30/-	75/-		

PLASTERER.

		s.	d.
Render, float and set in lime and hair	per yard sup.	3	4
Do. Do. Sirapite	" "	3	9
Do. Do. Keen's	" "	5	0
Add sawn lathing	" "	2	0
Add metal lathing	" "	3	6
Portland cement screed	" "	2	11
Do. plain face	" "	4	9
Mouldings in plaster	per 1 girth	0	3
One-and-a-half granolithic pavings	per yard sup.	6	11

GLAZIER.

		s.	d.
21 oz. sheet plain	per foot sup.	1	6
26 oz. Do.	" "	1	9
Obscured sheet	" "	1	11
⅛ in. rolled plate	" "	1	1½
¼ in. rough rolled or cast plate	" "	1	2½
¼ in. wired cast plate	" "	1	9

PAINTER.

		s.	d.
Preparing and distempering, 2 coats	per yard sup.	1	6
Knotting and priming	" "	1	0
Plain painting 1 coat	" "	1	6
Do. 2 coats	" "	2	4
Do. 3 coats	" "	3	2
Do. 4 coats	" "	4	0
Graining	" "	3	0
Varnishing twice	" "	2	6
Sizing	" "	0	4
Flatting	" "	0	9
Enamel	" "	2	0
Wax polishing	per foot sup.	0	11
French polishing	" "	1	9
Preparing for and hanging paper	per piece	2/- to 5/-	

* These prices apply to *new buildings only*. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployment Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

PROPOSED NEW BUILDINGS AND OTHER WORKS.*

In these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

BOURNEMOUTH.—Plans passed: Alterations and additions, Verulum-place, for the Bournemouth & Poole Electricity Supply Co., Ltd.; schoolroom, Victoria Home, Burnaby-road, for the Shaftesbury Society; conversion of garage into dwelling house, "Craigmoor," Branksome Wood-road, for Dr. Uhthoff; additions, 42 and 44, Palmerston-road, for Mr. A. M. Lines; additions to house, Gresham-road, for Mr. S. Makeham; reconstruction of electric theatre, Commercial-road, for the Capital & Counties Electric Theatres, Ltd; porch, Portman-crescent, for Mr. G. Lyford; alterations and additions, "The White House," Iford-lane, for Mr. P. F. Tanner; motor house, Cecil-avenue, for Mrs. Hobson; motor house, Charminster-road, for Mr. Wellstead; additions, 30, Livingstone-road, for Mr. W. J. Sheppard; additions to house, Plot 54, Soberton-road, for Mr. C. V. Miller; bungalow, Plot 97, Charminster-road, for Messrs. Wellstead Bros.; motor house, Seaward-avenue, for Messrs. Lawrences; house, Bay View-road, for Mr. R. J. M. Nabney; bungalow, Watcombe-road, for Mr. Lansdell; pair houses, Kimberley-road, for Mr. J. Drewitt; four houses, Howard-road, for Mr. A. C. Henning; House, Heathwood-road, for Messrs. Hawkins Bros.; house, Hillbrow-road, for Mr. H. Cummings; house, Bloomfield-avenue, for Mr. G. E. Cooke; two houses, Firs Glen-road, for Mr. C. Burt, junr.; house, Watcombe-road, for Mr. G. J. Ninnes; house, Wimbourne-road, for Mr. H. C. Barnes; house, corner Church & Warren Edge-roads, for Messrs. Lawrences; two houses, King Edward-avenue, for Mr. H. Barnes; house, Charminster-road, for Mr. F. White; house and shed; Charminster-road, for Mr. F. White; house, Bay View-road, for Mr. R. J. M. Nabney; house, Pinecliffe-avenue, for Mr. R. J. M. Nabney; additions, 47, Portman-road, for Mr. J. R. Gibbons; house, Queen's Park-avenue, for Mr. W. W. Baker; additions, 1, Beaufort-road, for Mr. J. Park; house, Newstead-road, for Mr. A. Ives; house, Green-road, for Mr. H. J. Roffey; house, Stoke Wood-road, for Messrs. G. E. & W. R. J. Lambert; additions, 17, Malvern-road, for Mrs. Eyears; motor house, "Blenheim," Priory-road, for Mrs. Peters; garages and stores, Washington-avenue, for Mr. W. Hayward; houses, Wimbourne-road, for Mr. H. C. Barnes; garage, 61, Seamoor-road, for Mr. S. W. Smith; transformer substation, Talbot-avenue, for the Bournemouth & Poole Electricity Supply Co., Ltd.; house, Cecil-avenue, for Mr. A. Harris; house, Talbot-road, for Mr. W. A. Walters; house, St. Valerie-road, for Mrs. Sykes; house, Keswick-road, for Mr. T. R. Burges.

CAMBRIDGE.—The T.C. has passed the plans by the Cambridge Automobile and Engineering Co. for the conversion of their garage in Hobson-street into a cinema.

CANNOCK.—Plans passed by U.D.C.: Six houses, Pye Green-road, for Mr. R. Foster; house, Blackfords, for Mr. H. Darrall; house, Heath Hayes, for Mr. A. S. Beniston; house and garage, Blackfords, for Mr. W. Wardle.

CHATHAM.—Plans passed by T.C.: House, Maidstone-road, for Mr. A. E. Brooker; auction hall and store, 323, High-street, for Messrs. Presnail & Sons.

CHESTERFIELD.—Plans passed by T.C.: Foundry, Park-road, for the Park Foundry Co.; alterations to premises, Stephenson-place, for Eyre & Sons; plumber's and smith's shop, for William Stones, Ltd.

CHORLEY.—The Lancashire C.C. has purchased a site for the erection of police cottages at Clayton-le-Woods.

CLITHEROE.—A plan of a sawmill, to be erected near Chatburn Station, for Mr. L. Smalley, approved by R.D.C., and permission was given for the erection of new workshops and a rifle range at Stonyhurst College.

CONNAH'S QUAY.—The U.D.C. has decided to proceed with the erection of 72 houses.

EAST HAM.—A M.H. inquiry is to be held into the proposal of the B.C. to borrow £5,400 for the extension of the dust destructor works.—Plans passed by B.C.: Workshop extension, 350, High-street North, for Mr. S. Schwartz; alterations, "Duke's Head," Barking-road, for Mr. A. Baker.

EDINBURGH.—At the Dean of Guild Court an application by Mr. James Robb, builder, for warrant to erect 40 houses in Dalkeith-street and Joppa-terrace, Portobello, was granted.

ELGIN.—The T.C. has decided to proceed with its housing scheme.

FYLDE.—The Lancashire C.C. has purchased a site for the erection of police cottages.

GAINSBOROUGH.—Mr. H. E. Byrne, on behalf of the Ministry, has held an inquiry touching the U.D.C.'s application for sanction to borrow £10,838 for the purpose of installing a water gas plant.

GREAT YARMOUTH.—Plans passed by T.C.: Additions, High-street, Gorleston, for the Co-operative Society, Ltd.; alterations, North Quay, for Garson Blake & Son, Ltd.; a house and shops, the Quay, Gorleston, for Mr. G. Gilbey; porch entrance to Cliff Hotel, Gorleston, for Mr. A. V. George; additions to flour mill, Southtown, for R. H. Clarke, Ltd.; a roof over the yard, North Quay, for Mason and Mason; garage, 5, Marine Parade North, for Mr. F. Van Houton, shop front, 45, High-road, Gorleston, for Miss E. M. Chambers; three houses, Cliff Hill, Gorleston, for Mr. E. J. Middleton; cart shed and store, High-street, Gorleston, for Mr. Darby; garage and greenhouse, Barnard-avenue, for Mr. G. Barron.

HAYWARDS HEATH.—Plans have been passed for the erection of an ex-Service men's club in Perrymount-road.

ILFORD.—Plans passed by the U.D.C.:—J. Gilbert P. Meaden, technical school, Dr. Barnado's Homes, Barkingside; J. H. Sankey & Son, Ltd., lavatory buildings at Depots, Ilford Hill; Howard & Sons, Uphall-road, new buildings at Uphall Works; F. G. Faunch, garage, 10, Shawville-gardens; Ward & Ward, Norfolk-street, Strand, alteration to Eastern Lodge, High-road; W. A. Knox, house and garage, 42, Morrab-gardens; G. Sharpe, stalls, Ilford-lane Market.—The U.D.C. has decided to apply to the Ministry of Health for sanction to borrow £35,764 18s. 6d. for the erection of maternity home buildings.

ILKESTON.—Plans passed by T.C.: Bungalow, Little Hallam, for Mr. James Cooper; bungalow, Hallam Fields-road, for Mr. T. Williamson; motor garage, Manor-lane, for Mr. J. Proctor; alteration to sanitary conveniences, Stanton-road, for Messrs. Shipstone & Sons.

JOHNSTONE.—At Johnstone Dean of Guild Court George-street Picture House Company were granted permission to alter George-street Hall to be utilised as a picture house.

KING'S LYNN.—Plans passed by T.C.: Alterations to garage at St. James's-road, for W. H. Johnson & Sons; warehouse at Pinder's Bank, for Mr. W. A. Bardell.

LEYTON.—Plans passed by U.D.C.:—Mr. W. A. Lewis, workshop at Lea Bridge-road; Messrs. Kind & Co., addition to cottage, Davies-lane; Mr. H. E. Newman, new latrine at Harvey-road; Mr. W. F. Lovett, two houses, Colchester-road; Mr. F. Harman Lewis, shop and sub-station at Church-road; Mr. J. H. Hickton, cinema at High-road, Leytonstone.

LONDON (BATTERSEA).—Drainage plans passed by B.C.: At Railway Arches, Portslade-road, for the L.B. & S.C. Railway Co.; at Pullman Car Co.'s Works, Silverthorne-road, for Messrs. Bridge & Co.; at offices in Nine Elms-lane, for Messrs. G. E. Wallis & Sons.

LONDON (HACKNEY).—The B.C. has receiv sanction to borrow £4,300 for repairing works.

LONDON (HAMMERSMITH).—Sanction to borrow £2,733 for sewer reconstruction has been given to the B.C. and £24,843 for housing.

LONDON (POPLAR).—Plans passed by B.C.: Garage, Bedford-street, Mr. W. E. Trent, for Messrs. Cornells, Ltd.; additions, "Waterloo Hero," Gough-street, for Mr. T. Stevens; sanitary works, Anchor Wharf, Gate-street, for Mr. S. B. Caulfield; additions, "Star in the East" public-house, Tetley-street, for Messrs. J. & H. Cocks, Ltd.; additions, "Pride of the Isle," 20, Havannah-street, for Messrs. F. & F. K. Dainton.

LONDON (ST. PANCRAS).—The L.C.C. has sanctioned the borrowing by the B.C. of £150,000 for housing purposes.

NEWCASTLE.—A site has been secured at Blackett-street, Newcastle, for the purpose of erecting a new centre of amusement to comprise a picture hall, dancing hall, restaurant, billiard hall, tea rooms, &c., to be known as "The Oxford." The architects for the schemes are Messrs. Adamson & Kinns, of 10, Iddesleigh House, Caxton-street, S.W.1.

NORTHAMPTON.—Plans passed by T.C.: Additions to motor house, Park-avenue, for Mr. G. Nichols; new store room, Arthur-street, for the O. A. Miller Last Co.; additions, 50, East Park-parade, for Mr. H. Green; 3 houses, Abington-avenue, for Mr. H. Green.

PAISLEY.—Sheriff Wilson has held an inquiry in regard to the application presented to the Secretary for Scotland by the T.C. for a Provisional Order, authorising them to borrow £100,000 for the purpose of erecting vertical retorts at the gasworks.

RETFORD.—The T.C. has sanctioned capital expenditure of £4,800 for the erection of a central school.

SALFORD.—Plans passed by T.C.: Construction of—Workshop, Ash-lane, Broughton; two detached dwelling-houses, Cavendish-road (5 & 6, Carmona-gardens, Broughton); lads' club, Cannon-street, North George-street and Methvin-street, Salford. Alterations to—Premises for use as school, "Summer hill," Eccles Old-road, Pendleton; Foresters' Arms, Booth-street, Pendleton. Additions to—Anaconda Works, St. Simon-street, Salford. Construction of—Library, workshop and garage, "Kersal House," Radford-street, Broughton; garage, Cornet-street, Broughton; office, Orchard-street, Pendleton; bread store, Eccles New-road, Salford. Alterations to—Bridgewater Works, Orchard-street, Pendleton; "Mason's Arms," Robert Hall-street and Brighton-street, Salford. Additions to—Works, Agecroft Hall Mill, Pendleton; works, East Stanley-street, Salford.

SCARBOROUGH.—The trustees of the Queen-street Wesleyan Chapel have accepted the plans of Mr. Withers, architect, for the erection of a central hall on the site of the old chapel.

SHEERNESS.—Revised plans for the County School for Girls are before the Kent C.C.

STOCKTON.—Plans have been approved by the R.D.C. for a bungalow in Sandy Lees Plantation, Elton, for Mr. George Chadfield, and for a house and farm buildings at Thorpe Thewles for Mr. McLaren, of the Manor House.

SWADLINCOTE.—Plans passed by U.D.C.: Mr. J. Waterfield, stable, saddle room, School-street, Church Gresley; Lipton's, Ltd., alteration to premises, High-street, Swadlincote; Mr. S. Whitaker, alterations and additions to house, Common-road, Church Gresley; Rev. M. A. Parmentier, presbytery in Newhall-road, Swadlincote; Mr. W. Dennis, house, Church-street Church Gresley; and Mr. R. Vernon, house, Stanhope-road, Swadlincote.

WELWYN.—The Herts. C.C. has purchased a site for a school at the Garden City and has instructed the County Surveyor to prepare plans for a building for 400 children.

YORK.—Plans passed by T.C.:—Scruton & Co., additions to warehouse, Barker-lane; W. Wright & Sons, alterations, Bridge-street; Northern Motor Utilities Ltd., drainage, Foss Islands-road; W. Birch & Sons, Ltd., roof over yard, Granville-terrace Rowntree & Co., Ltd., garage, Wigginton-road; E Fearn, shed, 33, Frances-stteet; Col. Key, bay windows, 33, Heworth Green.—The T.C. has decided to carry out alterations to the Exhibition Buildings at a cost of about £6,000.

FIRES.

GRANGEMOUTH.—A fire has occurred in a building belonging to the Grangemouth Wood Flour Milling Co. (Ltd.), at Earl's-road.

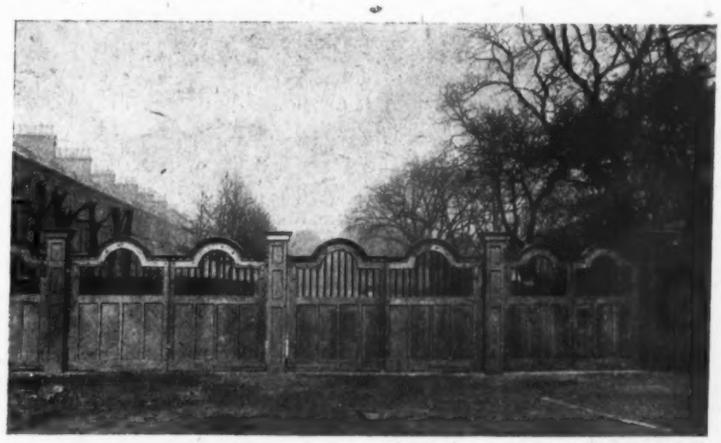
KEIGHLEY.—Damage estimated at £2,000 has been caused by a fire, which occurred on the premises of Messrs. G. L. Greenwood and Co. (Ltd.), manufacturing chemists, New-road Side.

KILSYTH.—The Roman Catholic Church at Holy Cross, Croy, about two miles from Kilsyth, has been completely destroyed by fire.

LEEDS.—The toy factory of Messrs. Waugh & Co., in Lower Hanover-street, has been almost entirely destroyed by fire.

LINCOLN.—Damage amounting to several hundred pounds has been caused by a fire at Riseholme Hall, three miles from Lincoln, the home of Captain C. Wilson.

SELBY.—A fire has occurred at the Staddlethorpe Flax Mills, in the East Riding, the property of Yorkshire Flax, Ltd.



Gates in English Oak at Victoria Park.

[These gates have recently been erected by the Vectis Stone and Fencing Co., Ltd., at the Royal Entrance to Victoria Park, London, E., for the London County Council. The gates are in English oak from Gloucester, and the ironwork was forged at the foundry of the Vectis Company.]

* See also our List of Contracts, Competitions, etc.

CITY FLOOR COLLAPSE.

THE inquiry into the case concerning the death of two labourers in the employ of the Gresham House Estate Co., who were killed through the collapse of a floor during the reconstruction of Gresham House, Old Broad-street, E.C., on March 30, has been concluded by Dr. F. J. Waldo, at the City Coroner's Court. At the time of the collapse men employed by Mr. Price (trading as B. Goodman, house-breaker) were demolishing a wall on the ground floor, and Mr. John Todd, City Surveyor, alleged that the collapse was directly and solely due to an overloading.

Joseph Wale, manager to Mr. Price, stated that the floor was in very good condition. Witness did not know that the deceased men were working under the floor. They had no business there, and witness never allowed men to work underneath where demolitions were going on. He did not agree that the weight of the bricks caused the floor to collapse. It was not usual to put struts under a ground-floor building. Bricks being practically unprocurable at the present time, his firm were told to preserve all the old bricks; these were thrown from the ground floor into the basement through a hole in the floor after being cleaned. The workmen used to remove the bricks from the basement at night, and this accident happened in the morning.

James Brown, foreman, said he was not aware that men were working in the basement until the accident occurred. There were three or four tons of material on the floor after it collapsed, but some of it had been thrown up during the work of rescue.

Mr. Martin Lucas Saunders, architect and surveyor, said he was inspector of dangerous structures under the London Building Act. In the case of Gresham House two processes were going on at the same time; they were pulling down and building up. After the accident he found that four corbels and two girders had snapped, the result of a heavy impact. A portion of the floor was covered by a reconstruction, and a steel stanchion had to be inserted. If this stanchion fell the impact would have been sufficient so to damage the corbels, &c., as to cause them to collapse later. He could not say how long the fracture had been in the corbel before it gave away. The stanchion might have done the damage five months ago.

Evidence as to their experience of work having been properly and carefully done with freedom from accident by Messrs. Goodman for many years past was given by Mr. H. T. Desch (Director of Messrs. Holland & Hannan and Cubitts, Ltd.), Messrs. Trollope & Colls, Ltd., Messrs. Higgs & Hill, Ltd., Mr. George Hubbard, F.R.I.B.A., and Mr. Keynes Purchase, F.R.I.B.A.

Mr. Ernest Griffith Price, trading as B. Goodman, said he had been carrying on business as a housebreaker for over 20 years and employed over 500 men. He estimated that during the past three or four years he had done at least 80 per cent. of the demolition work in the City. During the whole time he had been in business he had never had an action against him for damage to property, and although his trade was a dangerous one there had only been one death amongst his men during the past six or eight years, and that was caused by a man falling from a scaffold 10 ft. high. He had never heard of a housebreaker strutting up a back addition floor. It was not because of the expense, which was trifling, but it was not necessary. Five similar back additions had already been demolished on this job satisfactorily. The men should not have been underneath. This was not because an accident was to be expected, but as a matter of principle. The floor would have been taken off next day and the bricks then stacked.

The jury returned a verdict of accidental death.

The death is announced of Mr. John Henry Cox, of the firm of Messrs. J. H. Cox & Sons, bldrs., of Coventry.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach him *not later than Tuesday evening.*

* Denotes *accepted.* † Denotes *provisionally accepted*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modifications.*

ARMAGH.—For the erection of 10 houses, with drainage, &c., for the U.D.C. Mr. Francis Bergin, architect, Dublin :—

O'Hare & Mallory, Armagh	£9,042 5 7
P. McKenna & Sons, Armagh	9,480 0 0

(Consideration adjourned.)

BIRKENHEAD.—Erection of 184 houses, for the T.C. :—

‡R. Costain & Sons, Liverpool.... £183,447

BOURNEMOUTH.—For exterior painting of Municipal College and Central Public Library, for the T.C. :—

*D. Drake & Son ..... £380 and £56

BOURNEMOUTH.—Erection of wall at Victoria Hospital, for the T.C. :—

*R. T. Templeman & Son..... £137 3 6

BOURNEMOUTH.—Erection of reinforced concrete bridge, in St. Stephens-road, for the T.C. :—

*Grounds & Newton..... £5,989 13 6

BRANDON.—For the erection of 12 houses at Brandon, for the R.D.C. :—

Bury St. Edmund's Building Guild	£8,560 0 0
Bowerman & Evans, Ltd., Lowestoft	10,397 0 0
Arthur Holden, Thetford	10,456 0 0
A. W. Fisk, Ipswich	11,043 9 0
R. H. Walden, Feltwell	11,370 19 6
Olly Bros., Brandon	11,426 0 0
F. A. Roper, Ipswich	11,444 0 0
H. Middleton, Stowupland	12,058 13 7
S. F. Hodge, Sicklesmere	12,956 0 0
J. H. Carter, Great Yarmouth	14,427 17 8

With reference to the tender of the Building Guild, the architect pointed out that in addition the Guild required £40 per house lump-sum and a further 6 per cent. on each house. If £40 per house was added this brought the figure from £8,560 to £9,560.—Consideration deferred.

BRIGHTLINGSEA.—For the construction of a public convenience in Victoria-place, for the U.D.C. Mr. H. V. Lord, Surveyor :—

*W. J. Vaughan, Colchester £567

BROMLEY.—Erection of houses, for the R.D.C. :—

Chelsfield—

Warley Field (12 houses), ‡H. Lacey & Son, Luton	£10,695 0 0
Kiln Field site (8 houses), ‡H. Lacey & Son	7,160 0 0
Main-road, Prattsbottom (4 houses), ‡H. Lacey & Son	3,850 0 0
Church site, Prattsbottom (6 houses), ‡H. Lacey & Son	5,300 0 0
Vine-road, Green-street-green (14 houses), Ferrate Manufacturing Co., Ltd., Green-street-green	13,294 7 1
World's End-lane, Green-street-green (6 houses), ‡H. Lacey & Son	5,490 0 0
Oak Brewery site, Green-street-green (8 houses), ‡H. Lacey & Son	7,600 0 0

Farnborough—

Pickington's-lane (8 houses), ‡R. M. Hughes, W.C.	7,981 0 0

Hayes—

George-lane (10 houses), ‡Champion & Son, Peckham	10,522 17 7

Keston—

Westerham-road (32 houses), ‡R. Mansell, Croydon	30,258 0 0

Knockholt—

Post Office site (8 houses), ‡H. Lacey & Son	6,880 0 0
Burlings-lane (4 houses), ‡H. Lacey & Son	3,420 0 0

Orpington—

Homefield Rise (110 houses), R. M. Hughes, W.C.	107,641 0 0
Chelsfield-lane, Griggs Cross (20 houses), ‡H. Lacey & Son	19,210 0 0

St. Paul's Cray—

Hearns-road and Star-lane (50 houses), R. M. Hughes	41,916 0 0

West Wickham—

Hawes-lane (12 houses), ‡A. G. Winter, Norwood	11,128 0 0

(Recommended for acceptance, subject to the approval of the Ministry of Health.)

CARDIFF.—For the erection of a new electrical substation and public shelter, at Roath-park, Cardiff, for the City Council. Mr. E. J. Elford, City Architect, Cardiff. Quantities by City Architect :—

*Jos. Thomas & Sons, Cardiff	£948 0 0
Thomas Selby, Cardiff	1,202 19 7
R. H. Blacker & Sons, Cardiff	1,220 0 0
Knox & Wells, Cardiff	1,260 0 0
Lloyd & Hopkins, Cardiff	1,279 7 7
F. Bond, Cardiff	1,309 16 0
S. & I. Williams, Cardiff	1,343 11 8
Rogers & Davies, Cardiff	1,360 0 0
Osbourne Newcombe, Cardiff	1,397 18 7
F. C. Williams, Cardiff	1,400 0 0
H. C. Edwards, Cardiff	1,425 17 3

CHELMSFORD.—For supply and laying of water mains on the Boarded Barns housing site, for the T.C. :—

*G. Percy Trentham, Ltd., Cheapside, E.C.—	
English	£3,980 0 0
French	3,124 10 0
H. Middleton, Stowmarket—	
English	3,514 0 4
J. Walling, Spalding—	
English	3,750 9 4
W. & C. French, Buckhurst-hill—	
English	3,873 12 6
French	3,223 12 6
"Mannesman"	3,373 12 6
F. J. French, Chelmsford—	
English	5,116 0 0
"Mannesman" steel weldless	4,516 0 0

(The tender accepted was for French pipes.)

CHESTERFIELD.—Erection of 42 houses, for the T.C. :—

*M. Simpson	£8,540
*J. H. S. Randall	25,091

CHESTER-LE-STREET.—Alterations to police station, for the Standing Joint Committee :—

*C. Groves, Chester-le-Street.. £4,053 9 5

CONNAH'S QUAY.—For erection of 156 houses, construction of roads, &c., for the U.D.C. :—

Jones & Hough, Heswall..... 141,178

(Submitted to Housing Commissioner.)

DARLINGTON.—Painting of police-station, for Durham Standing Joint Committee :—

*T. Easby, Darlington..... £301 3 7

DURHAM.—Erection of memorial tablet in Shire Hall, for the Durham C.C. :—

*Hart, Son, Peest & Co., London..... £230

DURHAM.—Re-slating of roof of Assize Courts, for the Standing Joint Committee :—

*J. E. Nelson, Sunderland..... £465 2

DURHAM.—Wiring of Assize Courts, for the Standing Joint Committee :—

*Gray Bros., Durham..... £343 10

EASTBOURNE.—For erection of lawn tennis stand at Devonshire Park, Eastbourne. Mr. John C. Bowley, F.S.I., architect :—

*James Bodle, Ltd.	£489 0
E. G. Noakes	575 0
J. W. Woolnough	650 0
Martin & Sons	698 10

EAST HAM.—For painting, &c., at dining hall of Hart's Sanatorium, for the B.C. :—

*Sheppard Bros..... £329

EDMONTON.—For installation of electric light at fire-station, for the U.D.C. :—

*E. Williams, South Tottenham..... £130

EPPING.—For construction of sewerage works at Sheering, for the R.D.C. :—

*W. & C. French, Buckhurst Hill.... £590

FOLKESTONE.—For resurfacing part of Canterbury-road with tar macadam, for the T.C. :—

*Constable, Hart & Co., Ltd., E.C. 4.. 10s. 6d. per yard super for about 4,750 super yards.

FOULRIDGE.—For repair of culvert, for the Lancashire C.C. :—

*J. W. Cowgill, Earby..... £297 8

GLASGOW.—Erection of sub-station at Buchanan-street, for the T.C. :—

Digger, brick, &c., work—

*John Train & Taylor	£8,999 1 7

Wright work—

*John M'Donald, Ltd.	374 1 4

Plumber work—

*J. L. Arnot & Co.	209 7 1

GLASGOW.—Erection of sub-station at Kennyhill, for the T.C. :—

Digger, brick work, &c.—

*John Train & Taylor	£5,500 0 0

Plumber work—

*M'Culloch & Griffon	93 14 7

GLASGOW.—For painting work at the Police Offices, for the T.C. :—

*Norfolk Decorators (Central Office)	£919 5 4
*Logan & Gray (Northern Office)	452 1 9
*Peter M'Kerracher (Eastern Office)	537 4 10
*J. Stirling (St. Rollox Office)	468 18 2
*P. M'Kerracher (Maryhill Office)	301 0 8½
*Johnston & Roberts (Hillhead Office)	232 7 8

GLASGOW.—For supply and erection of public weighing machine, for the T.C. :—

*W. & T. Avery, Ltd. £829 0 0

GLASGOW.—For the carrying out of jobbing works for six months, for the City Improvements Committee of the T.C. :—

Jobbing plumber work—

*James Raeside & Co., for North Central District.
*William Smith & Co., for the Western District.
*John Crawford, for the Southern District.
*John Paterson & Co., Ltd., for the South Central District.
*John Phillips, for the Eastern District.
*James Anderson & Co., for the Townhead District.
*Thomas Porter & Son, for the South-West District.
*William Morrell, for the Calton District.

Jobbing mason work—

*Taylor & Wilson, for the Southern District.
*John Hill, for the Townhead District.
*James Wylie & Son, for the Central District.

Jobbing painter work—

*A. & H. Gilchrist.

GLASGOW.—For various works required in connection with alterations to Mountblow House, for the T.C. :—

Brick, &c., work—
*Bremner & Co. (Glasgow), Ltd., Glasgow..... £686 11 7
Joiner, &c., work—
*Thomas Henderson, Glasgow 1,020 10 8
Slater work—
*J. & Hy. Williamson, Clydebank 196 2 3
Plumber work—
*John Paterson & Co., Glasgow 394 18 9
Plaster work—
*J. & Hy. Williamson, Clydebank 298 2 5
Heating installation—
*C. F. Howden, Glasgow..... 383 7 10

GLASGOW.—For steel and cast-iron work at Parkhead Depot, for the T.C. :—

*James Allen, Senr., & Son, Ltd.... £17,750

GLASGOW.—Construction of railway siding at Robroyston Hospital, for the T.C. :—

H. M. Murray & Co., Glasgow.. £5,011 11 6

HARPENDEN.—Rebuilding of Pickford Bridge, for the Herts C.C. :—

*K. Holst & Co..... £2,628

HENDON.—For reconstruction of Edgware-road, for the U.D.C. Mr. A. O. Knight, Borough Engineer and Surveyor, Hendon :—

Charles Carter, Golders Green (one section only)..... £33,518 0 0
Howard Farrow, Golders Green 84,646 5 7
D. R. Paterson, Ltd., Camden Town 85,270 18 3
G. J. Anderson, Poplar..... 87,005 12 9
P. & W. Anderson, Ltd., W. 1 93,691 19 0
Acme Flooring & Paving Co., Victoria Park..... 95,100 0 9
G. Wimpey & Sons, Ltd., Hammersmith 98,801 10 3
Improved Wood Pavement Co., E.C. 4 ..... 99,605 17 5
Wm. Griffiths & Co., Ltd., Bishopsgate 100,119 8 8
John Mowlem & Co., Westminster 101,240 1 6
Frank Hayes, Liverpool.... 109,135 15 8
Currall, Lewis & Martin, Birmingham 111,320 0 0

HIGH WYCOMBE.—For the erection of 46 houses (5 pairs type "P," 13 pairs type "Q," 5 pairs type "Z," and road-making, &c.), for the R.D.C. Mr. Charles F. Wright, architect :—

*Grace & Marsh, Ltd., Croydon.... £33,349 0
Lavington (1916), Ltd., Clapham.. 35,564 0
Adams Housing Syndicate, Ltd., Uxbridge..... 36,257 14
A. L. & H. W. Chown, Northampton 37,165 0
Y. J. Lovell & Son, Gt. Marlow.... 37,211 0
R. H. Harris & Co., Gt. Marlow .. 38,095 0
J. Honour & Son, Tring 38,884 0
Stevens, Horlock & Co., London .. 38,935 0
White Bros., High Wycombe 38,978 19
Benfield & Loxley, Ltd., Oxford .. 39,798 0
Geo. Slade & Co., Ltd., Barnsbury 50,070 0
For 18 houses (1 pair type "P," 4 pairs type "Q," 4 pairs type "Z," and road-making, &c.)—
Barney & Sears, Stokenchurch .. 14,923 18
For 28 houses (4 pairs type "P," 9 pairs type "Q," and 1 pair type "Z")—
Frank R. Holland, Stokenchurch 26,800 0

[*Accepted subject to approval of Ministry of Health. [Type "P" houses=Ministry of Health Class "B 3"; type "Q" houses=Class "A"; and type "Z" houses=Class "A."]

H.M. OFFICE OF WORKS.—Accepted during March :—

Building Works, &c.—Acton Ministry of Pensions, painting: Charles Groom & Sons, Ltd., London, W.; plastering: C. Peppiatt, London, W.; plumbing: John Knight & Son, London, S.W. Bedford houses, plastering: Eady Bros., Kettering. Birtley houses, plastering: Peter Harle, Sunderland; slating: Richard Fletcher, Ltd., Blackburn. Brighton, demolition: Henry J Greenham, London, S.W. Bristol Head Post Office, painting: Wm. Cowlin & Son, Bristol. British Museum, plastering: G. H. Bending & Sons, London, S.W. Civil Service Commission, plastering: Veronese, London, S.W. Hove, erection of houses: James Bodle, Ltd., Eastbourne. Kew Insurance Office, chimney shaft: Chimneys, Ltd., London, S.W.; steelwork: Measures, Bros. (1911), Ltd., London, S.E. Kingswood (Chester) Sanatorium, erection: F. Butterworth, Manchester; bricklayer's, &c., work: T. Campion & Sons, Manchester; plumbing: R. H. Booth, Manchester. Manchester Instructional Factory, painting: M. Greenwood & Son (Burnley), Ltd., Burnley. Southampton, various painting works: Routledge & Ross, Southampton. Wishaw Inland Revenue Office, alterations, &c.: D. & W. Nimmo, Wishaw. Wolverhampton, hutting, &c.: Henry Gough & Son, Wolverhampton.

Engineering Services.—Eccles Telephone Exchange, heating apparatus: Thomas Blackburn & Sons, Ltd., Preston. Hertford House, electric lift: Wm. Wadsworth & Sons, Ltd, Bolton. Houses of Parliament, main and submain boards: The British Thomson Houston Co., Ltd., London, E.C. Kew Insurance Office, electric wiring: The Alpha Manufacturing Co., London, S.W.; fire services: O. C. Summers, London, N.; heating, &c.: The Thames Bank (Blackfriars) Iron Co., Ltd., London, S.E. Leeds, removal and re-erection of electric lift: Marryat & Scott, Ltd. London, E.C. National Physical Laboratory, cables, &c.: The Pirelli-General Cable Works, Ltd., London, E.C. Royal Courts of Justice, refrigerating plant: The Lightfoot Refrigeration Co., Ltd., London, E.C.

HOLYWOOD.—For painting at Holywood Hall Sanatorium, for the Durham C.C. :—

*W. & G. Ebdon, Walsingham..£141 and £98 5

ILFORD.—Supply of 200 tons of granite setts, to the U.D.C. :—

*W. Griffiths & Co ..... £4 18 6 per ton

KINGSTON-ON-THAMES.—For alterations and additions to the Workmen's Club, London-road :—

*Slatter & Turner, Kingston £499 15
Holloway, Surbiton 525 0
Budd, Kingston 551 0

LANCASHIRE.—For works of adaptation, repairs and decorating of the following farms on the Estate: Farrer's Farm, Clegg's Farm, Carr's Farm and Middle Grange Farm, for the Lancashire C.C. :—

*W. & J. Hart, Longton..... £2,168 6 3

LONDON.—Painting of external wood and ironwork at Council's dwellings in Regency-street, for the Westminster City Council :—

*Townsend & Pearson, Ltd., W..... £1,718
J. R. Sims, S.W..... 2,090
Army & Navy Co-operative Society, Ltd., S.W..... 2,293
W. Wright & Son, W.C..... 2,790

LONDON.—Supply of steam crane for Poplar Wharf, for the L.C.C. :—

	5-ton crane.	3-ton crane.
*T. Smith & Sons (Rodley), Ltd., Leeds.....	£1,820 0..	£1,475 0
E. G. Appleby & Co., Ltd., Westminster	2,037 15..	2,037 15
Henry J. Coles, Ltd., Derby	2,098 0..	1,795 0
The Anderson-Grice Co., Ltd., Carnoustie.....	2,100 0..	1,900 0
Isles, Ltd., Leeds.....	2,150 0..	1,680 0

LONDON.—For heating installation at Shelburne-road School, Islington, for the L.C.C. :—

*J. Giggs, London..... £1,349
Strode & Co., Ltd., London..... 1,396
Benham & Sons, Ltd., London..... 1,443
G. & E. Bradley, London..... 1,443
W. Watkin & Son, London..... 1,448
J. C. Christie, London..... 1,520
J. & F. May, London..... 1,599
The Thames Bank (Blackfriars) Iron Co., Ltd., London..... 1,621
W. E. Fretwell, East Ham..... 1,629
E. Deane & Beal, Ltd., London 1,830

LONDON.—Construction of drain connection at Bush House, Strand, for the Westminster C.C. :—

*D. R. Paterson, Ltd..... £1,000 4 2
John Mowlem & Co., Ltd..... 1,208 9 2
Alexander Thomson & Co..... 1,228 0 0

PITTENWEEM.—For the erection of 14 houses at Abbey Park, for the T.C. Mr. William Walker, architect :—

Mason—
J. Clark, Anstruther (14 houses) £5,691 17 5
Joiner—
W. H. Swan, Kingsbarns, and L. & W. Horsburgh, Pittenweem (4 houses)..... 1,522 2 4
R. Lumsden, Pittenweem (2 houses) 737 6 4½
W. Lumsden, Pittenweem (8 houses) 2,406 18 5
Glazier—
W. H. Swan, Kingsbarns (4 houses) 24 5 0
C. C. Edmund, Cupar (10 houses) 40 7 6½
Slater—
J. Robertson, Dunfermline (14 houses) 1,034 7 8
Plumber—
L. Horsburgh, Pittenweem (4 houses) 455 5 0
J. Bruce, Elie (2 houses)..... 236 12 3½
T. Wood, Pittenweem (8 houses) 866 16 9
Plasterer—
W. Gilmour, Anstruther (4 houses) 315 15 6
T. Williamson & Sons, Pittenweem (10 houses)..... 900 0 6
Painter—
J. C. Rolland & Son, Leven (6 houses) 216 13 4
R. Bruce, Pittenweem (8 houses) 302 16 5
Total £14,760 4 6½

SALFORD.—Alterations and repairs at Police Station, for the T.C. :—

John Daniels & Sons..... £177 9

SALFORD.—For decorating certain rooms at Ladywell Sanatorium :—

*R. H. Worsnip & Son..... £308 10

SALFORD.—For (*a*) electric light installation, and (*b*) painting work at Summer Hill School, for the T.C. :—

*(*a*) W. Smith & Co..... £261 10
*(*b*) W. Walton..... 195 0

MERTHYR.—For erection of 80 houses at Treharris, for the T.C. :—

	A. 12 Pairs Cottages (Type 167), Parlour.	B. 2 Pairs Cottages (Type 365), Non-Parlour.	C. 11 Pairs Cottages (Type 761), Parlour.	D. 3 Pairs Cottages (Type 563), Non-Parlour.	E. 12 Pairs Cottages (Type 921), Parlour.
John Morgan, Aberystwyth per pair	£2,098 0 0..	£1,750 0 0..	£1,914 0 0..	£1,946 0 0..	£2,010 0 0
Thomas James, Ystrad Mynach ..... ,,	2,232 13 11..	2,230 19 7..	2,232 9 2..	2,210 11 10..	2,262 5 4
Thomas Jones, Dowlais .. ,,	2,180 0 0..	1,842 0 0..	1,874 0 0..	1,890 0 0..	2,084 0 0
The Building & Public Works Construction, Ltd. (A. J. Colborne, Swindon) ,,	2,060 0 0..	1,812 0 0..	1,986 0 0..	1,870 0 0..	1,997 0 0
Adams Housing Syndicate, Ltd., Uxbridge ..... ,,	1,956 0 0..	1,590 0 0..	1,938 0 0..	1,850 0 0..	1,964 0 0
Calway's Concrete Walling, Ltd., Swansea ..... ,,	1,870 0 0..	1,610 0 0..	1,734 0 0..	1,830 0 0..	1,868 0 0
Fredk. Hopkinson & Co., Ltd., Worksop ..... ,,	2,119 4 0.. (Referred to Housing Commissioner.)	1,927 15 0..	2,099 15 0..	1,917 17 0..	2,016 14 6

NORTHAMPTON.—For the erection of houses, for the T.C. (revised tenders) :—

Type of House.		Per Pair.	No. of Pairs Offered.	Original Tender Price.
	Abington Site:			
No. 1	A. Glenn & Son	£1,570 0 0	10	£1,792
No. 2	Thomas Wilson	1,578 12 9	3	1,755
No. 2	E. Archer & Sons, Ltd.	1,596 0 0	3	1,780
No. 3S	G. R. King	1,550 0 0	4	1,683
No. 3S	King & Fox	1,550 0 0	2	1,690
No. 3S	G. F. Sharman	1,552 0 0	4	1,694
No. 3S	A. Glenn & Sons	1,550 0 0	2	1,695
No. 3N	A. P. Hawtin & Sons, Ltd.	1,557 0 0	2	1,700
No. 4S	Throssell & Co.	1,648 0 0	4	1,860
No. 4S	A. Glenn & Sons	1,650 0 0	4	1,855
No. 4N	A. P. Hawtin & Sons, Ltd.	1,677 0 0	2	1,870
	Far Cotton Site:			
No. 3	W. H. Samuel	1,556 10 0	2	1,704
No. 3	H. G. Allum	1,550 0 0	2	1,696

STAMFORD.—For the erection of 66 houses upon land south of New Cross-road, for the T.C. :—

		Class "A." Type 135.	Class "B." Type 119.	Class "B." Type 152.	Class "B." Type 171.
†John Morgan	£51,154 7 0..	£1,428 14 2..	£3,097 6 8..	£1,555 7 8..	£1,668 15 2
Clarke & Bolton	69,229 10 0..	1,940 0 0..	4,451 10 0..	2,225 0 0..	2,090 0 0
Harry Fisher (Class "B" only)..	41,408 0 0..	—— ..	3,786 0 0..	1,840 0 0..	1,717 0 0
Hotter & Son	71,147 7 8..	1,954 14 6..	4,719 10 4..	2,472 15 10..	2,013 4 0
Hinson & Co. (exclusive of gas fittings)	63,292 0 0..	1,860 0 0..	3,910 0 0..	2,016 0 0..	1,885 0 0
F. R. Hipperson	61,046 0 0..	1,808 0 0..	3,862 0 0..	1,940 0 0..	1,780 0 0
Interloe Building Construction..	61,380 0 0..	—— ..	—— ..	—— ..	——
Interloe Standard of Construction	54,948 0 0..	—— ..	—— ..	—— ..	——
E. Ireson	64,406 0 0..	1,755 11 3..	4,274 2 2..	2,132 1 4..	{1,911 15 7 / 1,909 1 6
W. C. Morgan (Panels, Ltd., construction)	56,440 0 0..	1,600 0 0..	3,680 0 0..	1,700 0 0..	1,750 0 0
W. C. Morgan	60,370 0 0..	1,671 0 0..	4,020 0 0..	1,800 0 0..	1,900 0 0
Pattinson & Sons, Ltd.	69,460 0 0..	1,963 0 0..	4,540 0 0..	2,230 0 0..	2,060 0 0
Simms, Sons & Cooke, Ltd.....	56,900 0 0..	—— ..	—— ..	—— ..	——
Thornhill Bros.	68,842 0 0..	—— ..	—— ..	—— ..	——
E. J. W. Wilson (exclusive of gas fittings)	62,201 5 6..	1,824 16 9..	3,865 17 0..	1,971 13 6..	1,855 7 3

SALFORD.—Erection of two static transformer sub-stations, for the T.C. :—

*Moseley Construction Co... £388 and £320

STEYNING.—For forming, paving, and sewering about 180 yards of roadway, in connection with housing scheme, for the R.D.C. :—

‡James Bodle, Eastbourne £785
J. Parsons & Sons, Hove 942
C. V. Buchan & Co., Ltd., Southwick.. 1,215

TOTTENHAM.—For alterations and additions to St. Katherine's Training College, Tottenham, for the S.P.C.K. Messrs. Young & Hall, architects, 17, Southampton-street, W.C. 1. Quantities by Messrs. Ruaull & Young :—

J. W. Falkiner & Son..... £10,675
T. Rider & Son..... 10,797
H. Knight & Son..... 10,996
Holloway Bros., Ltd..... 11,250
Trollope & Colls, Ltd..... 11,784
Foster & Dicksee, Ltd..... 12,764

WALTHAM CROSS.—For repairs and renovations at Greenfield House, for the Herts C.C. :—

*A. J. Maxfield, Waltham Cross..... £985
P. R. Paul, Waltham Abbey..... 1,038
R. Archer & Son, Cheshunt..... 1,196

WAR OFFICE.—The War Office has accepted the tender of Blackford & Co. for periodical building works services at Okehampton ; that of W. H. Jones, Abelgale, for similar services at Newport ; that of H. Mellor, Woking, for the Oxford, Reading and Bristol District ; and that of J. C. Vaughan & Sons, Hereford, for Chester.

WREXHAM.—For re-surfacing portion of Chester-road with tar macadam, for the T.C. Mr. J. England, Borough Engineer :—

*Tarmac, Ltd., Wolverhampton £1,543

TRADE NEWS.

Messrs. Edwin Ellis & Co., Ltd., of Alpha-road, Millwall, E. 14, manufacturers of the well-known "World" brand steel wire ropes, have issued a series of leaflets containing some data regarding the approximate weights, breaking strains, &c., of their manufactures for various sizes. The data is given in both English and metric measurements, and will be of value to those interested in this type of rope. The firm manufactures steel wire ropes and cords for all the various purposes for which they are used, such as crane ropes, scaffold lashings, pulleys, &c.

The suitability of sliding doors for purposes where large entrances are required, such as garages, warehouses, &c., and where hinged doors of the size required would result in much wasted space, owing to the large floor area which has to be kept clear to allow such doors to fold back, has led to their wider adoption in recent years, and the size and weight of some of these doors (airship shed sliding doors weighing 320 tons have recently been built) have naturally brought many attendant problems to be overcome. To those concerned with this type of door, a catalogue, issued by Messrs. P. C. Henderson, Ltd., of West Bank Works, Barking, E., should be of considerable interest. This firm specialises in all kinds of gear and fitments for sliding doors, and a large variety of door tracks, track brackets, trolley hangers, floor guides, &c., is illustrated in the catalogue to hand (No. 21). The trolley door tracks are supplied in lengths from 4 to 10 ft., of standard section, which are readily joined by the firm's centre bracket. An offset above the grooves prevents any part of the hanger from rubbing against the side of the rail. Some folding doors, incorporating several novel ideas, made to run on the firm's standard track, are also illustrated. A further section of the catalogue is devoted to overhead runways and pulley blocks.

Messrs. W. & A. Bates, Ltd. (St. Mary's Mills, Leicester), announce that the price of "Bates" solid rubber tyres has been reduced by 10 per cent. No alteration has been made in the quality of the tyres and the section has not been reduced.

WOOD-BLOCK FLOORING, PARQUET FLOORING and END-GRAIN PAVING fixed complete in any locality. PARQUET and HARDWOOD DANCING FLOORS a speciality.—Send particulars of requirements to STEVENS & ADAMS, Ltd., Victoria Works, Point Pleasant, Wandsworth, S.W. 18. Telephone: Putney 1700.

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